EDITORIAL
DOMESTIC ENGINEERING

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ATTEND YOUR CONVENTION.

THE secretary of a certain association in sending out notices to various members of the organization who had been appointed to membership on the convention committees used an interesting way of insisting on their attendance. He accompanied his notices with a statement to the effect that "George" had been ordered to take a vacation because of overwork, and that he would not be at the convention that year, and that, therefore, it would be absolutely necessary for the man appointed to be present at the convention and personally see to it that the duties assigned to him were carried out. The result was a full attendance and a convention notable for its "I'll do it" spirit.

Conventions are lifeless depressing events or they are forces for increasing business, for developing goodwill and co-operation, and for inspiring confidence, depending entirely on the class of men who make up the organization. If they are chiefly indifferent, selfish persons who are always content to "let George do it," they may as well disband and quietly wait for the undertaker; but if they number among them a good proportion of active, progressive men who are willing to make temporary sacrifices for the good of the organization and the trade in general in order that they may eventually benefit from the changed conditions, the convention should prove a clearing house for sound, helpful ideas and information and the renewing of confidence and enthusiasm. The man who goes to a convention with the thought of absorbing a lot of information and ideas from someone else without bringing anything to exchange for it is likely to find that the other fellow has similar plans and both leave empty-handed after having wasted both time and money. There are a great many problems that come up during the year, some of which the contractor is able to solve and some of which demand concerted study and action. Those problems he has solved he should be prepared to report on, and he should at least be able to ask intelligent questions about the others. The man who wants something for nothing is pretty certain to be disappointed even at a convention, but the man who has something to offer in the way of information, ideas, suggestions, or just a genuine willingness to "dig in" and do his part whenever called on is certain to come back from a gathering of his fellow tradesmen with much that will prove of help in his business and with renewed enthusiasm and confidence. Let's extend George's vacation and attend conventions prepared to do our share.

BIG BUSINESS FROM SMALL ORDERS.

THE leading salesman for a plumbing and heating supply house when asked recently how he managed to keep up his volume of sales, replied, "I work hard and I'm not ashamed to take a small order. If a man gives me an order for fifty dollars' worth of goods, I treat him just as well as if he had placed an order amounting to several thousands. I don't get the large orders that I used to get, but by working a little harder and a little longer I manage to get enough orders, big and small, to keep pretty close to the total amount I sold when times were better." At the present time people are very conservative, they are buying carefully, and as a rule in small lots.

Merchandising in the plumbing and heating business has come to stay. It started with the selling of small items and has grown to the point where the sales across the counter in a great many plumbing and heating shops form a big part of the firm's total business for the year. When there is little or no building for a time the shop that has built up a successful merchandising business does not feel the temporary slump nearly so much as the one that is depending entirely on contracting. The little cash sales individually do not look very important, but a great many little sales at a fair margin of profit go a long way toward keeping the business going and toward dispelling the gloom that is so likely to accompany a period of quiet in the building industry. And the important thing in building up a merchandising business, particularly at this time, is for the contractor to keep after the small orders and treat the person who comes in and makes a fifty-cent purchase just as courteously as though he were spending a great deal more, thus gaining his respect and confidence, and paving the way for securing his business when he has larger orders to place. It is quite necessary for the contractor to adjust himself to conditions as he finds them. When it is impossible to obtain contracts for new work, business must be developed in buildings that need remodeling and repairing and through cash sales.

WHAT IS ESSENTIAL *for* SUCCESS *in the* PLUMBING BUSINESS

"Hand-Picked Organization" Is the Answer, Says President of the W. G. Cornell Company, Which in Short Space of Thirteen Years Has Achieved Leading Position in the Plumbing Industry

SOME people think that because a firm has built up a business, within a comparatively short space of time, which represents an outstanding success of unusual proportions, it must have discovered some secret method of cost accounting or time charging, or something of that kind. The W. G. Cornell Company, of New York City, is a case in point. Although a comparatively new organization —organized in 1908—this concern has landed and handled some of the largest plumbing and heating contracts ever placed in this country, or in the world. It did all the plumbing work, for instance, on the Hotel Pennsylvania, of New York City, which was actually the largest contract of the kind ever given to one firm. The complete cost of this plumbing installation was $1,450,000, and there were 8,000 plumbing fixtures and over 90,000 lb. of brass pipe. It also did the plumbing in the Hotel Commodore, the Woolworth Building, Bankers' Trust Building, Cunard Building, the Western Union Building, and many other huge projects in New York. Its operations, moreover, have not been confined to New York. They have included prominent mechanical installations in practically every large city in the country.

Mention this firm's phenomenal success to a man who has been in the plumbing business all his life, and is still struggling, and he will probably shake his head and say: "They do it on their small labor costs," or "They have some wonderful system of cost charging."

U. S. War Risk Bureau, Washington, D. C. Fifteen Thousand People Employed in This Building. Plumbing, Heating and Lighting done by W. G. Cornell Co.

Remarks of this kind had come so often to the writer's notice that he finally decided to put the matter squarely up to Edward Slosson, president of the W. G. Cornell Company. And when this decision was carried out, Mr. Slosson met the question with a big laugh that blew it to tatters.

"We have no special system at all," he declared emphat-

ically. "We probably have just the same system of charging our time that every other plumbing organization has, and probably the same system of cost accounting for various contracts on hand, proportioning the overhead pro rata."

Massachusetts Institute of Technology, Cambridge, Mass.

"Then how do you account for your remarkable growth within the short space of thirteen years? Surely you must have something in your outfit, or your system, or somewhere else, that some others do not possess?" the writer insisted.

"Well, I don't know," was the thoughtful response. "We have a very broad business policy, and we make every effort to co-operate with the owner, architect, engineer and builder. We endeavor to establish confidence through the efficient manner in which we handle our mechanical installations and our high standard of workmanship. The thing uppermost in our minds is to make good on every contract, and once having secured a client, we endeavor to make him a permanent asset. We, of course, have had the widest practical experience, which is placed at the disposal of those erecting the building and towards the improvement of every installation. We, undoubtedly, take more care in making up our working drawings than any other firm in the country. They are absolutely accurate to a fraction of an inch, and our large sized details of bath and toilet room layouts are often used as final measurements by other trades. These working drawings have been highly complimented by those who have entrusted their work to us; in many cases they have been a revelation to the architects and engineers.

"But more important probably than any of these factors, in attempting to ascribe a special reason for our success," Mr. Slosson continued earnestly, "is the character and make-up of our organization—what you might call the human equation. All business success,—and in fact every kind of success,—and the big idea on which all we have done or hope to do is based, is to get the right men and to treat them right. The square deal in practice, that is what we're after; and we find, as I suppose many other people have found, that those who give a square deal generally get one back.

"You can say our idea of giving a square deal to our employees and getting a square deal from them is just a business proposition, if you like. We find it pays us and they find it pays them. Everyone concerned gets better results, and personally I attribute much of the success of the Cornell organization to the splendid spirit of our men, who work as whole-heartedly as if the business were their own, which indeed it is.

War and Navy Office Bldg., 19th and B Streets, Washington, D. C., Plumbing and Heating Contracts Nearly One Million Dollars.

"When we began we were most careful in the selection of the men who were to head our various departments and manage our branch offices. Under these men we have carefully assembled the finest men in their various positions in the country. This covers superintendents, foremen and mechanics. We are most particular in our selection of the mechanic and once having secured a good man we make every effort to keep him continuously on our payroll. Our large volume of business makes this possible; some of our men having been with us since the company was founded. In other words, our organization is hand-picked."

Since the death of Mr. Cornell last February the personnel of the firm is as follows: Edward Slosson, president; G. W. Simmons, vice-president; G. J. Simons, secretary; G. W. Yepsen, treasurer.

The company has branch offices in ten of the principal cities in the country and in Montreal, Canada.

As an illustration of the spirit that has been built up and pervades the Cornell organization, it is worthy of mention that the New York mechanics of the firm get up an annual outing to which the officials are invited as guests. This outing is largely attended and is

Remington Arms & Ammunition Works, Bridgeport, Conn., Contract for Plumbing and Tunnel Power Mains, Half Million Dollars.

a big factor in promoting the proper feeling between the inside and outside working forces. It is the "pull-together" of the Cornell organization, to which a great part of its success may be attributed.

As an illustration of how the pull-together spirit of the Cornell Company has resulted, it may be of interest to quote one or two of the innumerable letters received by them after completion of various big contracts which they have handled.

"August 28, 1917.

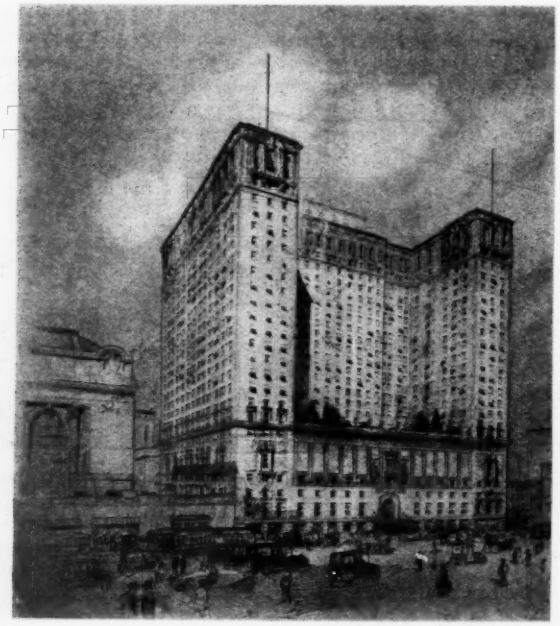
"W. G. Cornell Company,
45 E. 17th Street, New York City.

"Gentlemen:—Upon the completion of your work as subcontractors in the construction of Camp Albert L. Mills, I desire to express my appreciation of the manner in which you have performed that work.

"Speed was the most essential element in connection with the construction and the fact that you completed to my entire satisfaction the water-system for one regiment of 3,700 men in five days, for 15,000 men in ten days and the entire water system of the camp for over 27,000 men in fifteen days speaks for itself.

"I can and will unhesitatingly recommend your organization at any time.

Sincerely yours,
By F. H. Lawton,
Lieut. Colonel, Q. M. C., U. S. A.
Constructing Quartermaster."



Hotel Commodore, New York. 2,000 Bathrooms, 6,150 Plumbing Fixtures. Plumbing Contract over $600,000.

**Underpinning and Foundation Co.,
Washington, D. C.**

"July 18th, 1919.

"Messrs. W. G. Cornell Company,
17th St. & Union Square, North, New York City.

"Gentlemen:—At this time I take the opportunity, on behalf of the Underpinning & Foundation Company, who are the general contractors, of complimenting your company upon the manner in which you have executed the installation of the complete mechanical plant, including the plumbing, heating and electrical work, the Arlington Building, Washington, D. C., which is now the property of the Treasury Department of the United States Government, and I wish you to convey to your home and local organization our thanks for the very prompt and efficient manner in which they have handled same.

"For a job running approximately $600,000.00 we have yet to register our first complaint, and the letting of the entire mechanical plant to one concern has proven more than satisfactory.

"Again thanking you, I am

"Very truly yours,
"Alexander Reid."

It will probably be noted by the reader that in each of the letters above quoted emphasis is placed on the speed with which the installations were made, while maintaining always the highest standards of workmanship. It is Mr. Slosson's firm conviction that this speed, which made it possible in some cases to establish records, was due, more than anything else to the loyalty of the Cornell outside working organization—its eagerness to give its best in the firm's interests.

Hotel Pennsylvania, New York, Largest Plumbing Installation in the World — over $1,400,000 — 2,200 Bathrooms, 7,350 Plumbing Fixtures. Contract Awarded to Cornell Co. on Percentage Basis.

Of course the fact that a great deal of the work above referred to was Government war work made an appeal to the patriotism of the Cornell outside force in these particular cases. They realized that by speeding up their work and doing it as well as they knew how they were serving their country as well as their employers. But the patriotic urge was not needed as an additional stimulus to the greatest possible effort, in their case. That has been proven by the fact that in work done by the W. G. Cornell Company on other buildings, in which the Government was not interested, and the war not an issue, the same outstanding results have been noted. A Cornell employee's loyalty to his employers, it would seem, is almost on a par with his loyalty to his country. And that, according to Mr. Slosson, is the great secret of the success of this firm—a secret which some less successful plumbing and heating contractors may possibly find of practical use in the solution of their own problems.

SPECIAL SYSTEM *of* VENTILATION *for a* DWELLING HOUSE

Notes and Sketches Describing and Illustrating in Detail an Efficient Ventilating System for a Dwelling House

By Charles L. Hubbard

THE writer was recently called upon to provide sketches and a brief specification or report outlining an especially efficient system of ventilation for a dwelling house about to be erected. Heating was already provided for in the general building contract, a system of direct hot-water being called for, and the conditions imposed were that the ventilation be entirely independent of the heating, a rather novel procedure.

As the system recommended contained some rather unusual features and was a radical departure from the usual methods employed in this class of work, it may prove of interest to others engaged along this general line. For purposes of illustration, the scheme recommended has been applied to a different building, but similar as regards size and general arrangement.

A direct hot-water heating system has been shown, but as this differs in no way from the usual layout, all description and computations will be confined to the ventilating system. The general location of the radiation is shown on the first and second floor plans (Figs. 2 and 3) and the piping layout on the basement plan (Fig. 1).

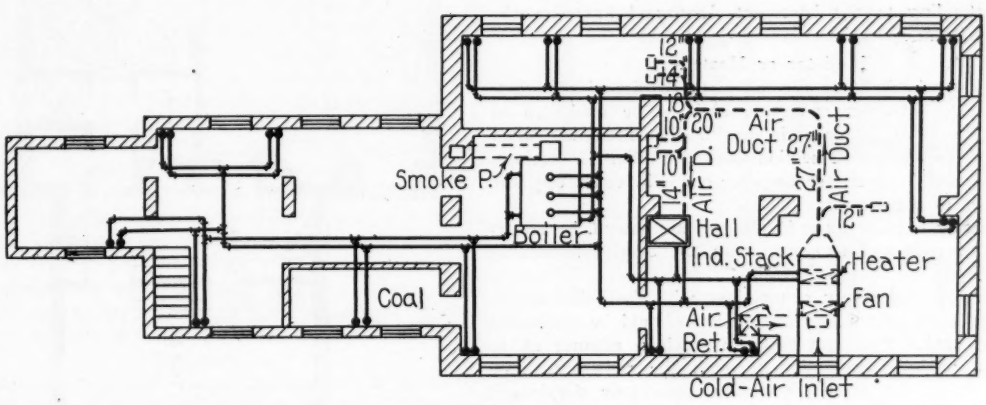


Fig. 1.—Basement Plan.

The description of the ventilating system is given in the general form of the report rendered, together with such changes as are necessary to make it conform to the new drawings.

General Conditions.

The latest theory of ventilation consists of a suitable temperature control, the maintenance of a proper degree of humidity, a certain amount of air movement, and sufficient outside air supply to furnish the necessary freshness.

The equipment proposed is designed to automatically bring about these results, and may be put in or out of service by throwing two small switches located at any convenient point on the first floor. It may be operated at ¼, ½, ¾, or full capacity, as may be desired according to the number of occupants, or outside weather conditions.

In the ventilation of residences there is considerable time when natural leakage will prove sufficient, and artificial means is necessary only during the latter part of the day and evening or when additional people are present, so that equipment of this kind should be so arranged that it may be turned on or off at any time in the simplest manner.

In residence work the ventilation is usually combined with the heating system by employing indirect stacks with outside air supply, but in the present case it was a condition that the ventilating system be entirely independent of the heating, a condition which has led to an entirely different treatment, and the adoption of a system much more in line with modern ideas, and one which should prove decidedly more efficient. It should be stated that, while at first glance, the equipment may seem somewhat complicated for a residence, there is no device employed which has not been tested by years of practical use and found to be entirely satisfactory for its intended purpose.

The best ventilation for chambers is considered to be open windows, with screens so placed as to prevent direct drafts from blowing directly upon the occupants. Hence, artificial ventilation has been confined principally to the important rooms on the first floor, including the living room, dining room, den, and hall, with air extension to bedrooms Nos. 2 and 3 on the second floor for use, in case of sickness or when occupied more or less continuously. This may be extended to include other rooms if desired, by enlarging the main ventilating equipment in the basement. In a general way, the fresh, moist air will find its way to the upper part of the house in considerable quantity without necessitating the use of special flues, especially with the return air system employed.

Equipment.

The essential equipment is shown in Fig. 4, and consists of a propeller fan, driven by a direct connected motor; a radiator for warming the incoming air to the normal temperature of the rooms, (70 degrees); a humidifying device for moistening the air when it falls below a certain point; automatic means for controlling the temperature of the air delivered to the rooms; automatic means applied to the direct radiators in the rooms to be ventilated, for controlling the temperature; automatic means for regulating the humidity; connection between the fan, the outside air, and the hall above and a system of ducts for carrying the air from the fan and heater to the various rooms to be ventilated.

Under normal operating conditions, approximately 1,400 cubic ft. of air per minute will be delivered to the various rooms, about one-half of this being drawn from out of doors, to maintain the necessary freshness, while the remainder is returned through a duct from the hall, increasing the total amount handled to a quantity sufficient to give the proper air movement through the rooms.

Fan and Motor.

The fan is to be of standard propeller type, 24 inches in diameter, and equipped with a direct-connected direct-current, ⅓ horsepower electric motor adapted to the current supplied to the building.

The motor is to have a normal speed of 700 revolutions per minute and is to be provided with a speed-regulating rheostat capable of giving at least four different speeds, of which 700 shall be the maximum. The starting switch and rheosat are to be located at any convenient point on the first floor.

The fan is to be mounted on a heavy wooden frame supported in such a manner as to carry the weight of both fan and motor without transmitting vibration to the building construction. A suggestion would be to carry the weight on posts extending to the basement floor, and brace to the overhead beams.

Radiator or Heater.

The heater in front of the fan is to consist of two cast-iron, direct, hot-water radiators, each to be made up of 2-column sections, 32 inches in height. The radiator nearest the fan is to contain 12 sections and the other 11 sections, set "staggered," so the sections of one will come opposite the spaces of the other.

The heater is to be hung in the position shown, by means of suitable rods and supports from the overhead building construction.

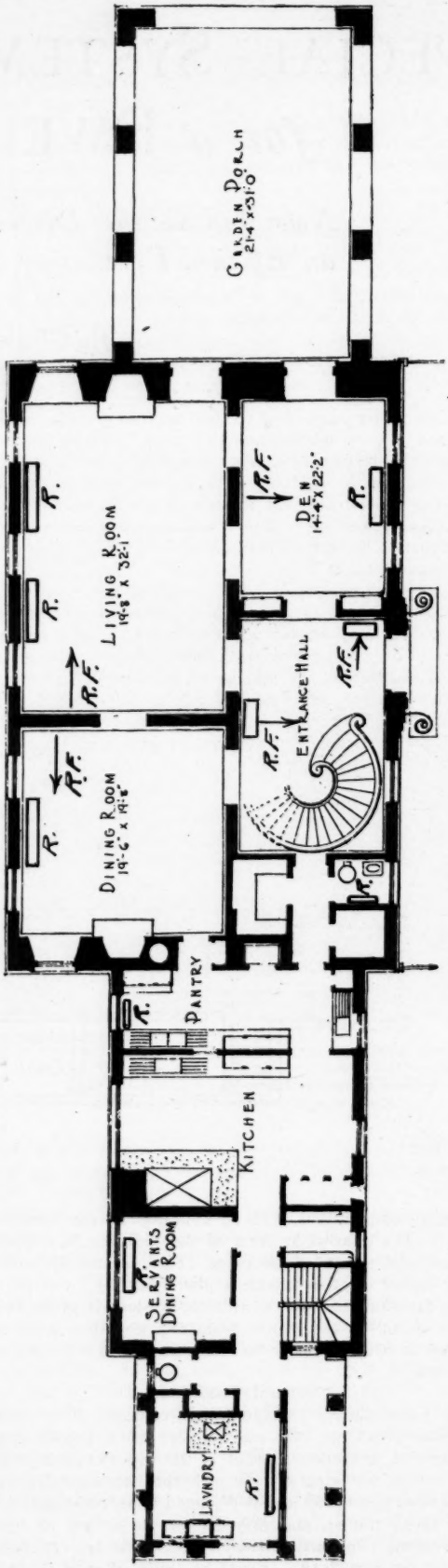
The supply and return connections with the boiler are to be of the sizes shown on drawing and should be connected with the mains near the boiler in such a manner as to ensure a positive circulation through the radiators. The supply should be provided with a pneumatic diaphragm valve (No. 1 in Fig. 4), and both supply and return with gate valves, approximately as shown in drawing.

Boiler Capacity.

The boiler capacity, as called for by the direct radiation, should be increased to care for the ventilation, by adding 1½ sq. ft. to the grate surface.

Humidifier.

Moisture is to be discharged into the chamber in front of the radiator, as shown in drawing, in the form of a fine mist, by means of a special spray head designed for this particular purpose, and have a capacity of 1 gallon of water per hour under the pressure supplied to the building. The connection between the water supply and the spray head should be of brass pipe, of the size called for by the head. It should be provided with a suitable strainer, a shut-off cock, and two pneumatic diaphragm valves. At least 10 ft. of this pipe should be wired tightly against the hot-water heating main and be covered in with sectional covering in



FIRST FLOOR PLAN

Fig. 2.

order to warm the water before it reaches the spray head. The method of controlling the spray is included under "automatic control."

Dampers.

Two dampers are to be placed in the fresh air inlet, both operated by pneumatic diaphragm motors. One of these (No. 1) is for closing the inlet when the fan is shut down, and is operated by a switch located near the fan switch and rheostat. The other damper (No. 2) is operated by a thermostat in the air duct beyond the heater, and closes automatically when the air temperature falls below a pre-determined temperature (66 to 68 degrees) due to an unusually low outside temperature, or to the water temperature in the heating system falling to a point below that necessary to offset the existing outside weather conditions. In other words, this damper is purely a safety device to prevent cool air from being admitted to the rooms and to eliminate any danger of freezing in the radiator.

While properly constructed dampers of heavy galvanized iron may be used, special pneumatic dampers of the general form furnished with automatic control equipment, with diaphragm motor connected directly with the frame, are recommended as being likely to prove more satisfactory. If galvanized iron dampers are used they should be of heavy iron, well stiffened and made to close against true flanges. In either case, the *free area* through the damper must be 190 sq. inches. Regulating dampers with means for holding in any desired position are to be placed in the duct leading to each room for equalizing the air flow.

Casings and Ducts.

The casing for the fan and radiator, the spray chamber, fresh-air inlet, return flue from hall, and all connecting ducts and flues between the spray chamber and the room registers are to be of galvanized iron. No. 20 gauge iron is to be used for the casing and spray chamber, and No. 24 for all ducts and flues. The casing is to be made rigid against vibration, using a light angle-iron framework where necessary, and fastening with stove bolts. A tight-closing door is to be provided for access to the fan and motor. Dimensions are marked on Fig. 1. All horizontal distributing ducts except the main leading from the spray chamber, are to be circular in section, and all vertical flues, and the main referred to, rectangular. The transformation from one to the other in all cases is to be of such form as to obstruct the air flow as little as possible.

After completion the regulating dampers in the basement ducts are to be adjusted to give a uniform velocity of air flow through the registers in all rooms.

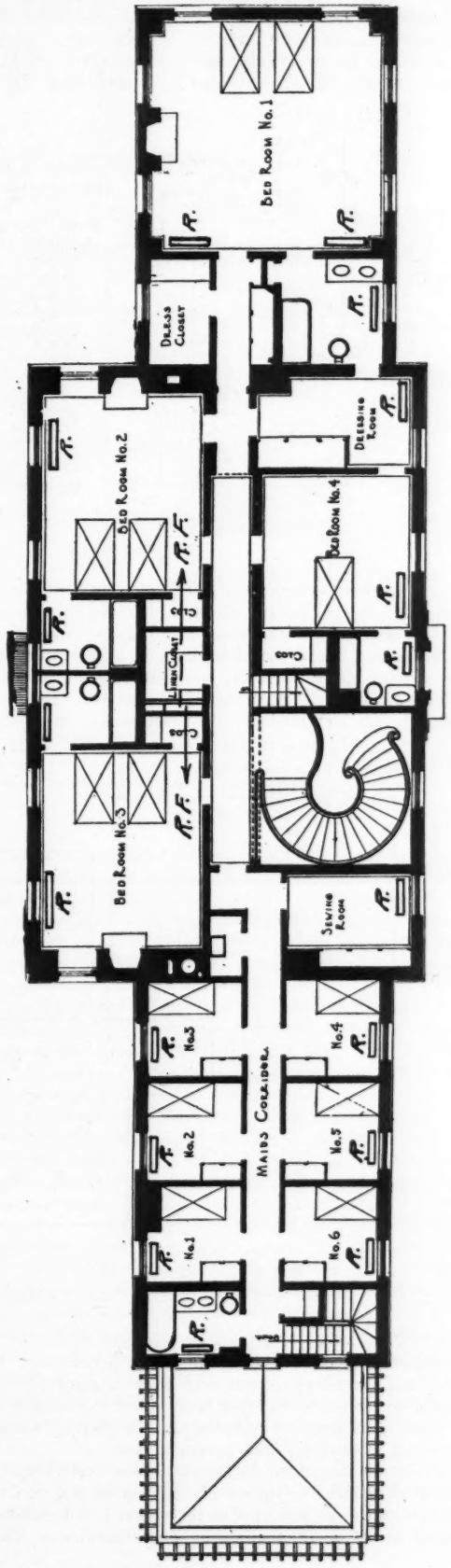
Registers.

Inlet registers to rooms, except the hall, are to be in the walls, with the bottom about 7 ft. from the floor. The size and general location are shown on the floor plans. If desired, the dimensions may be changed in any case, provided the over-all area is not reduced. Only register faces or grills are required, except in second floor rooms, all regulation of air flow being cared for by use of the dampers in the basement supply ducts. Registers of open pattern should be used.

The locations of the inlet registers, as shown on plans, are the most desirable from a theoretical standpoint, but if they interfere with the proposed furniture arrangements or building construction, they may be changed slightly without appreciable effect upon the action of the ventilation in rooms of the small size found in dwelling houses. It is suggested they be kept approximately as shown, but this need not be held to rigidly. The vertical flues have been kept to a uniform depth of 6 inches so as to fit between the studding without thickening the partitions.

Pneumatic Control.

This is to consist essentially of a hydraulic air compressor, operated either by city water pressure or an electric motor;



SECOND FLOOR PLAN

Fig. 2.

a pressure tank or reservoir, with all regulating devices and other usual equipment; diaphragm or syphon valves in the supply connection of each radiator in the rooms to be ventilated (four on first floor and two on the second); diaphragm valve on supply to radiator at fan (valve No. 1 in Fig. 5); and two similar valves (No. 2 and No. 3 in Fig. 5) in the water connection to the spray head; room thermostats in each of the ventilated rooms (6 in number); two hot-air thermostats (No. 1 and No. 2 in Fig. 5) in the warm-air duct beyond the spray chamber; one humidostat in the hall on first floor; one three-way air switch located beside the fan-motor switch and rheostat; two diaphragm or syphon motors (No. 1 and No. 2 in Fig. 5) for operating dampers (No. 1 and No. 2, Fig. 4) in cold-air inlet and all piping for connecting the pressure tank with the thermostats, humidostat, and three-way switch with their respective valves and diaphragm motors, together with water connection between house pressure and compressor, and also air connection between compressor and pressure tank.

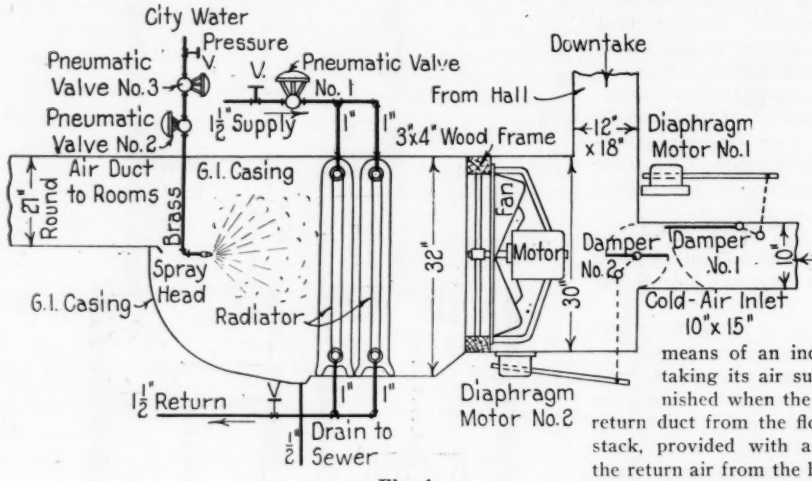


Fig. 4.

The general arrangement of the pneumatic system for the ventilating equipment is shown in diagram in Fig 5. The temperature of the air admitted to the rooms is automatically maintained at 70 to 72 degrees by duct thermostat No. 1 connected with diaphragm valve No. 1. The humidity is controlled by the humidostat in the hall, connected with diaphragm valve No. 2, and should be set to maintain a relative humidity of 40 to 45 per cent. Duct thermostat No. 2 is connected with diaphragm motor No. 2, and is arranged to close damper No. 2 when the temperature in the air duct falls below 66 to 68 degrees.

The three-way air switch is connected with diaphragm valve No. 3 and diaphragm motor No. 1 and is for shutting off the water supply to the spray head and for closing damper No. 1 in the cold air duct whenever the fan is shut down. The three-way switch is to be operated by hand.

Hall Equipment.

The front hall, on both first and second floors, is to be heated by means of an indirect stack located in the basement, taking its air supply from the fan. Air may be furnished when the fan is not running by connecting the return duct from the floor register near front door with the stack, provided with a switch damper which will connect the return air from the hall either with the fan or stack. This damper is to be connected with the same switch as damper No. 1, and set to return the air to the stack when damper No. 1 is closed and the fan not in use.

Computations.

The air volume for the different rooms is taken as follows: Living room, 300 cu. ft. per min.; dining room, 240 cu. ft. per min.; den, 180 cu. ft. per min.; hall, 320 cu. ft. per min.; chamber No. 2, 180 cu. ft. per min.; chamber No. 3, 180 cu. ft. per min. Total, 1,400 cu. ft. per minute.

Of this, 600 cubic ft. are to be taken from outside and must be raised to the room temperature, requiring

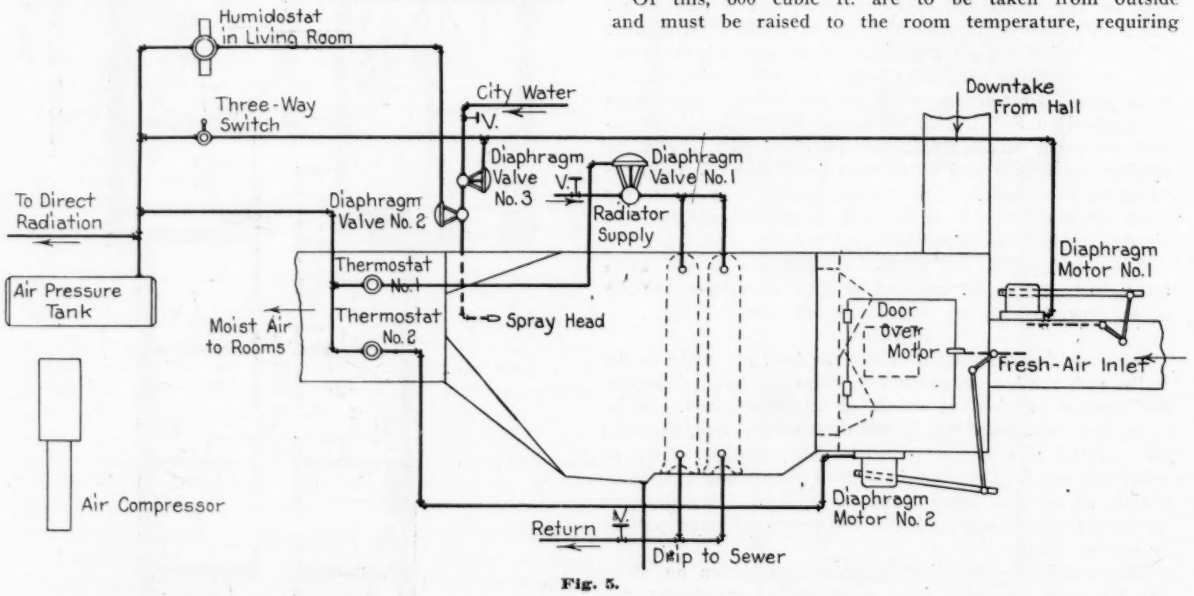


Fig. 5.

$\frac{60\times600\times70}{55}$=50,000 heat units per hour (nearly). Assuming a heater efficiency of 750 B. T. U. per sq. ft. per hour for the mixture of cool and warm air calls for $\frac{50,000}{750}$ = 70 sq. ft. of surface in the heater.

The horizontal air ducts are based on an approximate air velocity of 400 ft. per minute and the vertical uptakes are based on a velocity of 300 ft.

SEPTIC TANK *for* EIGHT-APARTMENT BUILDING *with* TWO STORES

Solution of an Unusual and Puzzling Problem of Disposing of Effluent in Small Back Yard—Answering a Question from a Subscriber in California

A SUBSCRIBER for "Domestic Engineering" recently sent our "Questions and Answers" department a question of more than ordinary interest. This question and our answer claim more space than is available in the columns of "Questions and Answers," and we are therefore publishing this information herewith. The question is as follows:

"Can you help me to solve a very weighty problem? I am erecting a building consisting of two stores and eight apartments above. The plumbing will consist of 10 water closets, 10 lavatories, 8 baths and 8 sinks. The building is being erected in unincorporated town with no sewer system.

"Could you suggest a system that would handle the sewage from this building, in vacant ground, 30x100 ft., in the rear of the building?

"Any information or advice you may present on this matter will be greatly appreciated.

"California. A. H. J."

The vacant ground at the rear of the building is 30x100 ft. There are two stores on street level, and eight apartments over the stores. We judge the plot with building is some-

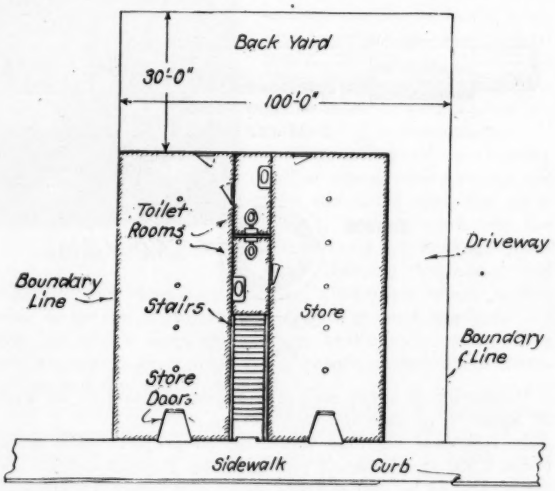


Fig. 1.

thing like Fig. 1, although it might be quite different, for correspondent does not give much data in this respect.

We will also assume that the ground is substantially level, and will consider that it is not sand, nor clay, but just ordinary soil, moderately porous and a considerable depth before an impervious stratum of clay, hard pan, or rock is struck. Thirty by one hundred ft. superficial area is certainly quite small to drain such a building into.

Note that the sewage has to be handled on that small area.

In considering this matter three important problems have to be solved.

First is the problem of sewage treatment.

Second is the problem of sewage disposal after being treated.

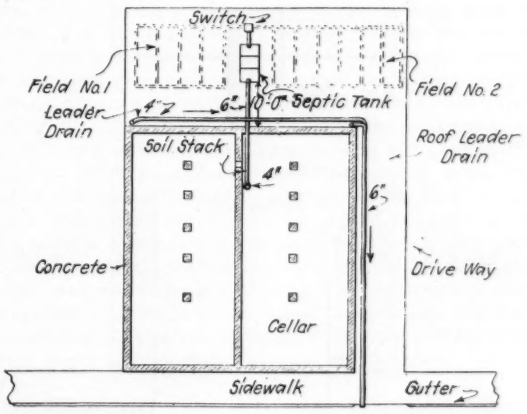


Fig. 2.

Third is the problem of correct sizes of the different parts, proper materials to use, and the best way to construct the plant.

Studying these problems in the above order we begin with the sewage treatment. According to the latest in sanitary engineering, it should be thoroughly digested in a septic tank. The solid residue should be retained in the digester, and the liquid only allowed to flow into the ground.

Thus the quantity of organic matter, which is subject to decomposition or change and which must be disposed of by the ground, will be reduced to a minimum. The digesting apparatus is known in our trade as a septic tank.

The tank has to be designed so that the sewage will flow through it at a very low velocity or rate of travel. The slower the better. This causes the sewage to stand, so to speak, in the tank for a certain time before it finally flows into the ground.

The sewage must be quiet and undisturbed by any churning or other disturbance in the tank. This is necessary to permit the solids to settle to the bottom. There they lie and decompose. A certain bacterial action takes place, which breaks up the solids and allows their digestion to become complete. The breaking-up process is one in which gas is given off quite freely. It bubbles up through the liquid and is vented off in some way.

Part of the solids is converted into a liquid condition. This mixes with the water in the tanks and goes to waste with it.

The residue, or sludge, as it is called, is the indigestible portion of the solids. It accumulates on the bottom of the tank and has to be pumped out, or drained away.

These are the essential elements of the septic tank. They must be provided for intelligently in the construction.

Regarding the second item, namely, the disposal of the liquid, or effluent, from the tanks a great deal has to be considered. Different conditions and soil characteristics influence the design and construction of this important portion of the system.

If the soil is sandy, or of a gravelly, or other porous character, the effluent may be delivered directly into it, providing there is no danger of contamination of any water

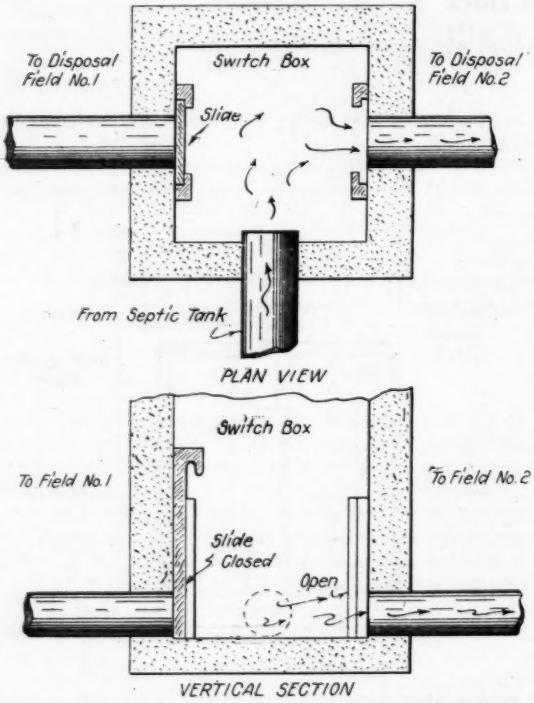


Fig. 3.

supply in the vicinity. The effluent then just percolates away through the soil.

But if the ground is impervious in character, such as clay, or hard pan, then the water will not percolate, or seep away. It will stay in the soil and water-log it. This will cause a most undesirable condition of affairs that would be condemned by sanitary authorities. In such a case it is necessary to find an outlet for the liquid and in many instances a filtration plant is necessary to purify the effluent before it is finally discharged at that outlet.

As for the third item mentioned, it is necessary first to determine definitely a suitable layout to meet the requirements of items 1 and 2. Knowing that, we can fix a general method of construction and on correct sizes of the piping, chambers and other parts of the system.

To illustrate a system for the case shown in Fig. 1, we assume that the ground is reasonably porous and level. On that assumption we would suggest the installation of a septic tank and disposal system substantially as shown in plan view in Fig. 2.

The septic tank is built underground in the back yard. It is connected to the main house drain, by 6-inch vitrified earthenware pipe laid under ground. The house drain is iron and extends 5 ft. beyond the cellar wall. There it delivers into the aforesaid earthenware pipe.

This pipe carries the sewage from all plumbing fixtures to the tank. No roof water enters the tank. It is carried to the street gutter or other suitable point and discharged there. Earthenware pipe may be used for this drain if it runs underground, as is suggested by the sketch. If it runs through the cellar at the ceiling, however, it must be of iron. The outlet of tank is 4 inches. It discharges directly into a switch box about 1 ft. square, which may be built something like Fig. 3. From this box runs a 4-inch field tile line to supply disposal field No. 1 and another to supply disposal field No. 2.

Inside the box is a wood slide, like a damper, which fits over the mouths of these two outlet pipes. By closing one outlet all the effluent from the tank flows into the other disposal field.

By changing or switching over this slide from outlet to outlet, say every 3 or 4 months, the disposal fields can have a rest alternately.

As to the disposal fields, they are each composed of a series of open-jointed field tile—say 4-inch tile pipe. This piping is run underground with a uniform downward pitch of about 1 inch in 30 ft. from the switch box.

The object of this piping is to distribute the effluent uniformly underground and permit it to seep away. Fig. 4 shows how the piping may be laid. The joints are left about ⅛-inch open and covered by saddles as shown, to keep out the sand.

The depth of this piping under grade level will depend somewhat on conditions. From 2 to 3 ft. deep is, we believe, common practice except in very cold climates where it may be 4 ft. or more, according to the prevailing frost-line during severe winters.

The quantity of pipe required in each field varies with the character of the soil and the volume of effluent to be disposed of.

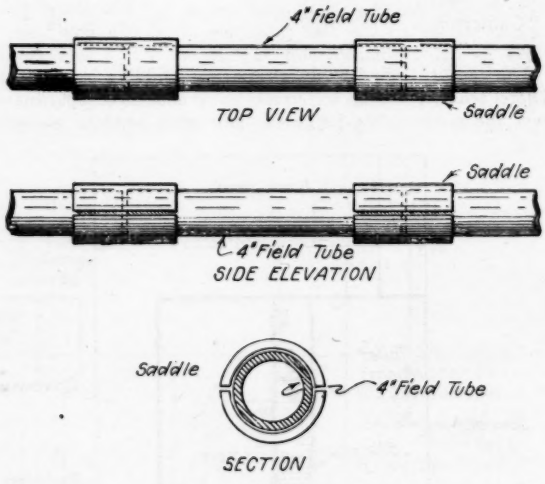


Fig. 4.

Ordinarily, in sandy soil, it is considered safe to lay about 30 lineal ft. of pipe for each person served.

In this case we may figure on 50 people. That means about 1,500 ft. of subsoil piping in the disposal fields. This piping should be laid in rows about 4 ft. apart, substantially as shown in Fig. 2. But your back yard is too small in area for this. The pipe lines would have to be about 18 inches apart in order to get enough piping in the alloted space.

You are really up against a serious problem of sewage disposal. Your difficulty all lies in the limited space for the disposal field; also in the extreme closeness of the fields to the building. We think you should try to make arrangements with your neighbors to all get together and have a common private sewer installed, if possible.

Otherwise try to arrange for a larger disposal field, and one that is farther away from the building.

CONSTRUCTIVE ADVANCEMENT *in* HEATING METHODS

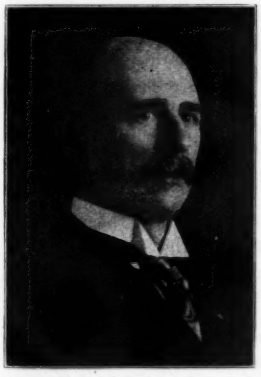
A Discussion of Past Effort and Present Day Practice

By Alfred G. King

"There can be no constructive advancement in any field of business unless sacrifices are made. There is no royal road to the attainment of knowledge that leads to mastery and success.

"It is a well known universal law that any given thing must either progress or retrogress. There can be, in the final analysis, no balancing middle ground. To stand still foreshadows stagnation and decay.

"Heating installation in all its varying phases has indeed become a highly specialized proposition which constantly demands the earnest study of men of trained and analytical minds."



Alfred G. King.

THE paragraphs quoted above appeared in an editorial in "Domestic Engineering" in June, 1915. As we reflect upon the experiences of the past five or six years, and the conditions in the heating business as they appear today, we can the more fully realize the truth of the statements made so long ago by the editor of this publication.

There has been no standing still or retrogression among the men connected with the planning of heating work and the manufacture of heating material. Heating engineers and manufacturers have been making a vigorous effort to improve upon the character and design of both methods and materials which form the modern heating apparatus. The fact is realized, as perhaps never before, that efficient methods and devices are in demand.

But a few years ago the average fitter and heating contractor seemed content to continue the installation of the old types of inefficient and wasteful heating systems. The ever increasing cost of fuel, and the transportation of it, has made it imperative that the former wasteful methods shall be discontinued, and the past ten or fifteen years have witnessed the introduction of many new types of vapor and vacuum heating systems, all calculated to increase efficiency and permit a wider range of control of the heating medium, be it steam, vapor or hot water. Many of these systems are now nationally well known while many of them are known only within a more or less limited area, yet, all bear witness to the fact that the fast advancing standards suggested in the above editorial are receiving earnest and constant study.

The writer has long been of the opinion that the general use of the more modern systems of heating has been held back by the reluctance of the small heating contractor. By "small" we mean the contractor who installs possibly from six to a dozen systems each year. There are so many of these contractors scattered among the smaller cities and towns that the total number of installations placed by them forms a very large portion of all of the heating work installed. Ten years ago—yes five years ago—if the average small heating contractor was asked to explain the installation and operation of a modern vapor or vacuum system, he might appear wise to the subject but in reality his knowledge of the matter was so small that the proposition appeared to him as complicated as a problem in higher mathematics of which he had no knowledge. Today those contractors who are progressive (and, praise be, their number is fast increasing) are making an intensive study of the more modern methods and are keeping in touch with every improvement of importance. We believe that the small contractor, who refuses to inform himself of the details of modern apparatus, is afraid of the subject. He thinks that there is something mysterious about it. There is nothing mysterious about the modern vacuum or vapor system, either in methods of construction or in the working of it.

For a considerable period recently, the writer discussed with the readers of "Domestic Engineering" the character and installation of many of the more important modified systems. These articles offered an opportunity to the fitter to become familiar with the details of modified heating and yet, notwithstanding this opportunity, many fitters and contractors passed up the chance of informing themselves regarding the systems discussed and illustrated. The man who is passing by the many technical articles and the world of information contained in his trade paper is missing the best method of keeping up-to-date in his profession.

Every advance in method of installation, or control of a heating system, has been made to overcome some distressing feature that interfered with its proper or economical operation. In an apparatus using vapor or steam as the heating medium there are two elements which, unless properly controlled, are liable to interfere seriously with the efficient work of the system. These elements are *air* and *condensation*. It is required that the air shall be exhausted from the system, and kept out of it, and it is also necessary that the water of condensation shall be returned to the boiler against any pressure or condition that may prevail.

In an endeavor to remove the mystery from mysterious (no pun intended), let us for a moment consider the elements of a heating system and, beginning with the one-pipe system, follow up each improvement that has finally resulted in the modern and efficient system of today. There are four elements or parts of the heating apparatus and these parts may be called the generating, conveying, condensing, and returning parts of the system, corresponding in their order to the boiler, supply piping and accessories, radiators or coils, and the return piping together with the apparatus or means employed to return the water to the boiler. These elements must function in perfect harmony with each other if the apparatus is to work successfully and economically.

The development of the one-pipe system of gravity steam heating was no doubt the first important advance in methods of heating. The old two-pipe, blow through system, clogged with the water of condensation and requiring a considerable pressure of steam to clear it of the water, was succeeded by the one-pipe system using larger pipes and lower pressures. In the one-pipe system many objectionable features were found and in noting the effort to rid it of these features we may, step by step, note the improvements culminating in the modern vapor and vacuum system.

In a one-pipe steam system the water in the boiler is heated until it boils and steam is generated. The system is open to the atmosphere and therefore a pressure of 14.7 pounds (at sea level) is exerted against the water with the result that it must reach a temperature of 212 degrees before boiling and generating steam. While all heating men are fully conversant with this fact, it is necessary to repeat it in order to follow up the improved methods of installation.

The steam generated increases in volume and, being confined, soon exerts a pressure. This pressure finds an outlet through the supply pipes to the radiators. The radiators will not fill with steam. Why? Because they are full of air. A small opening is made in the end loop of the radiator opposite to the supply and at once the steam pressure drives the air from the radiator. For convenience in stopping up the air vent hole the early method was to use a pet cock or small compression air valve. This required personal attention each time the radiator was filled with steam, and was a source of inconvenience, and this fact led to the devising of the automatic type of air valve. When this detail was appreciated heating men at once were actively devising various forms of automatic air valves. The Breckenridge, Jenkins and Victor were early types of these valves. Assuming that effective methods of piping were used, all possible friction overcome, and proper means were provided for returning the condensation against boiler pressure, the one-pipe system had now reached the highest state of development.

For use in factories and many other buildings pipe coils were used as radiating surface and, for efficient service, these required a double connection or the use of the two-pipe system. For such systems, and also two-pipe systems when radiators were used, a separate system of return piping was installed; otherwise the system was vented the same as the one-pipe system. Air is heavier than steam and drops to the bottom of the radiator or coil as soon as steam is admitted to it, the steam rising at once to the top surfaces of the coil or radiator and falling as it condensed or spread through the surface of the coil or radiator. With a knowledge of this fact the idea was conceived that the suction of a pump on the return line would draw the air from the coil or radiator along with the steam. It did, but it also pulled the steam into the return line. The idea was correct but some means had to be provided to keep the steam from the return line. This led to the development of the float and thermostatic radiator traps for use at the return end of the radiator or coil which was used in place of the common valve. Little was known at this time regarding vacuum methods or the use of vacuum principles in connection with a heating system, but experimenting with the various devices and methods quickly taught the engineers many facts which are now common knowledge. It was discovered that as soon as the pump pulled the air from a radiator with the supply valve shut, the radiator was under a partial vacuum, and that as soon as the supply valve was opened the steam filled the radiator almost instantly, demonstrating that steam would flow with great rapidity through a pipe or radiator if there was no resistance from the air. It was discovered that as soon as the pump pulled a vacuum of a few inches on the mercury column—inches of vacuum we now call it—all of the former air-bound surfaces of pipe and radiators would fill with steam rendering them from twenty to thirty-five per cent more efficient than they were before. It was also found that the vapor rising from the water in the boiler, without having any perceptible pressure, would freely flow through a vacuum system; in other words, that the heating medium was now *conveyed* rather than *forced* through the system of piping and radiators and that even though the fire in the boiler was banked, some heat was available throughout the apparatus. These facts, and many others, were discovered by the men who early made a study of vacuum heating, and while experimenting another thought came to mind. As vapor or steam is lighter than the air, and the air being removed with the water of condensation at the bottom of the radiator, why not admit the steam or vapor at the top of the radiator. Steam and air will not mix, therefore as soon as the air recedes down the loops of the radiator the steam or vapor will take the place formerly occupied by it and the condensing of the steam or vapor will drop down, or perhaps more properly run down, the inner surfaces of the loops without saturating the volume of steam admitted to the radiator. For this purpose radiators of the hot water type with top and bottom nipples were required, and it was noted that when the supply valve admitting the steam to the radiator was opened, it allowed the steam to spread across the top of the radiator so that each loop or section received the same volume of heat.

It was realized, no matter what the heating medium might be, that sufficient radiation must be provided to warm the room or building to the required temperature in the coldest winter weather. This might be zero or below for a few days at a time, while the average temperature the remainder of the winter season might not be lower than twenty-five or thirty degrees above the zero mark. Manifestly, but a portion of the radiation would be required in the milder weather if the supply of heat to it was continuous. This thought led to the development and use of the graduated or fractional radiator valve. Thus, step by step, the various refinements were added to the heating system, each adding to its efficiency or utility, and while perhaps the perfect system has not yet been devised, we have attained that measure of efficiency that means economy, comfort and satisfaction.

If every owner or user of a common steam heating apparatus could be made to comprehend the saving in fuel and attention made possible by modernizing the system there would be such an abundance of work for the steam fitting trade that it is doubtful if sufficient skilled labor could be secured to properly handle the situation. In the city of New York alone it is estimated that there is an annual waste of fuel having a heating value equal to 200,000 tons of anthracite coal. If the average price of this coal delivered was Fifteen Dollars per ton, this waste would amount to Three Million Dollars.

What can the heating contractor and fitter do to convince the owner that it is to his interests to install a modern system of new work or to cause him to consider the remodeling of the old and antiquated system? Talking points, or arguments that should be driven home—"Telling sales arguments" the salesman might call them—, are as follows:

a.—A saving of at least 25 per cent in fuel requirements, together with the expense of attention required to burn it.

b.—Every square inch of each radiator or pipe coil is made available as heating surface, due to the exhausting of all air, consequently less heating surface, or radiation, is required.

c.—No leakage or offensive odors at the air valves. A tightly sealed system, and therefore the complete elimination of air valve troubles. (The janitors of apartment buildings will appreciate this argument.)

d.—Condensation removed from the system without choking or clogging of piping or radiators.

e.—Steam and vapor flows through the system with the ease that water is poured from a pitcher. No undue energy required to convey it to the radiators. The energy required

to accomplish this detail in an ordinary steam system frequently amounts to twenty-five or thirty per cent of the power available.

These arguments in favor of a modern system, convincing as they may appear, are of little value unless placed before the owner with "pep" and enthusiasm. He will not go to the extra expense of installing a modern system except he is made to realize that it will be advantageous for him to do so. He is "from Missouri" and must be shown. It is at this point that the heating contractor may fail by not being able to explain, in a lucid and convincing manner, the various important features of the modern job that make for economy.

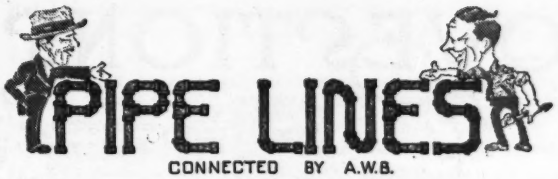
A case of this character recently came to the attention of the writer. The contract for heating a building in a small town was let on the basis of an ordinary low pressure one-pipe steam system. For the work approximately 1,750 sq. ft. of steam radiation was required. This was divided into twenty-four radiators. A heating concern manufacturing thermostatic radiator traps and the appliances required for the installation of a modern vapor-vacuum system had made, at the request of a local fitter, a complete heating plan of the work showing its system, and the local man had submitted a bid for the work. His bid was $370 higher than the accepted bid for a straight low pressure steam system. He was unable to show the owner why he should pay $370 more for the work and therefore lost the job.

Let us analyze some details of the steam system and see if it would not have paid the owner to have accepted the higher bid for a modern system.

We estimate that of about 14,000 heat units in a pound of coal, about 8,000 are available for actual heating when burned in the average low pressure steam boiler. Under ordinary conditions, a steam radiator will give off approximately 250 heat units per sq. ft. per hour when standing in air at 70°. Therefore, 1,750 sq. ft. (the amount of steam radiation required) ×250=437,500 heat units per hour. Dividing this amount by 8,000, the efficiency of a pound of fuel, shows that nearly 55 pounds of coal per hour will be required to generate the steam to fill the radiators. It is a rather peculiar coincidence that figures based upon the amount of heating surface, grate surface, water capacity, etc., of a boiler rated at 2,500 or 2,600 ft., the size normally required for this work, show that it requires approximately this amount of fuel (55 pounds) to develop the energy, or to generate the pressure of steam, required to drive the air out of the system after the apparatus has been allowed to cool off.

Assume that the apparatus has been allowed to cool off but twice daily for the heating season of 200 days, (a very low average) and estimating a loss of fuel of 100 pounds daily occasioned by reason of this, the total would be 20,000 pounds or 10 net tons. At an average price of $15 per ton this loss equals $150 for the season. Had the work been installed as a modern vapor-vacuum system, closed to the atmosphere, it would have been free of atmospheric pressure and any vapor rising from the boiling water in the boiler would flow unobstructed to every part of the system and there would have been no wasted energy or fuel lost in combatting the pressure of the atmosphere. Water boils at a much lower temperature in a closed system than in an open system and this would have effected a yet greater saving.

Experienced heating men are alive to these facts and fully understand the importance of being able to explain them. It is the average heating contractor in the small city or town, who seems always too busy to inform himself of the advantages derived from keeping in touch with better methods, as these men do not read and absorb the fund of information contained in their trade papers and periodicals. The opportunity of keeping informed and up-to-date is lost, and this is reflected in the loss of prestige and contracts of which the experience we have related is an example.



ADVERTISE!

There was a man who advertised but once—a single time;
In spot obscure he placed his ad, and paid for it a dime.
And just because it didn't bring him customers by score,
"All advertising is a fake," he said, or rather swore.
He seemed to think one hammer tap would drive a nail clear in;
That a lump of coal or two would completely fill his bin.
Some day, tho', he will learn that to make advertising pay,
He'll have to add ads to his ad and advertise each day.
C. P. R., Yonkers, N. Y.

SAY IT WITH SHOWERS.

A news item informs us that our local plumbers have enjoyed a large Christmas trade. PLATTE, Lincoln, Nebr.

F. B. H. (Chicago) says he has read the name of L. K. Sillcox in a newspaper. He wonders if the initials L. K. stand for Loose Kèy.

HE WORE A WORRIED LOOK.

He was a great man—successful, famous, rich. Still he looked as if some deep trouble was gnawing at his very soul. I asked him the reason for such a look. "I have a reputation for being able to do anything—anything in the world," he answered. "You know I have made some wonderful inventions, written popular books, painted beautiful pictures, climbed mountains, and in golfing, boxing, wrestling, swimming and the like, I am a champion. I can do anything—anything but one," and his voice broke into a sob. "I have taken a bath nearly every day of my life, but doggoneit!" he cried, "I can't regulate the faucets in the tub so that the water will be just the right temperature. It's always a little too cool or a little too warm. And what's worse," he moaned, "I feel that I never will be able to get it right." And that's why he wore a worried look. L. I. F., New York.

Is it true that electric light plants grow from bulbs?
BO-BO, Sandusky, Ohio.

The little lamb that Mary had,
With fleece as white as snow—
Maybe 'twas bought in Wall street,
Where lambs are fleeced, you know.
MIKE QUINN, Scranton, Pa.

Make fortune smile at you, but never let her laugh at you.
SOMEBODY'S STENOG, Wilmington, Del.

A NEW ONE.

A traffic cop stopped a woman motorist. "What do you want with me?" she asked.

"You was travelin' at forty miles an hour," the policeman informed her.

"Forty miles an hour?" said the indignant woman. "Nonsense! Why, I haven't been out an hour."
W. W., Duluth, Minn.

UPS AND DOWNS.

She: I don't want that boiler to blow up.
Plumber: Well, maybe it will blow down.
R. F. W., Morrisonville, Ill.

WHAT A BATH TUB MEANS.

To the Plumber: One more job.
To Father: Fit for another day's fight.
To Mother: A ring to be washed off.
To the Boy: Getting his neck and feet wet.
To the Hired Girl: Saturday night.
L. R. H., Davenport, Iowa.

What has become of the old-fashioned business man whose evenings were spent "on the books?"
WABASH, Terre Haute, Ind.

Throwing rice after a young married couple is not a sign that marriage is a pudding.

HELP CONNECT UP PIPE LINES. A. W. B.

QUESTIONS & ANSWERS

This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering," and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftsman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

PROBLEM OF INSTALLING PNEUMATIC WATER SYSTEM TO HOUSE ON HILLTOP TAKING SUPPLY FROM CITY MAIN.

Editor, "Domestic Engineering":—Kindly give me some information on the following questions. (Sketch you will find in Fig. 1 herewith.) We have a proposition of putting water to a house on a hill. The basement of the house is only 6 ft. lower than the bottom of city reservoir. In a straight line the house is about 2,000 ft. from the reservoir (Fig. 1), but the way the water pipe will run, it will be about 3,000 ft. long. The point where we will tap the mains

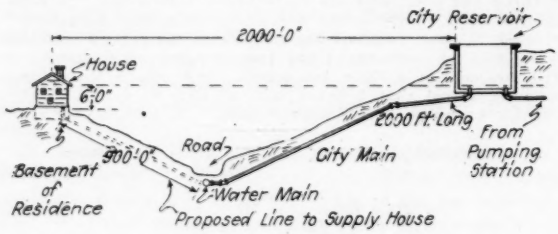


Fig. 1.

is at the road between the two hills, and about 900 ft. away from the house.

We are figuring on using a shallow well water system with a pneumatic tank of about 120 gallons capacity per hour. The water system will be electric driven, with an automatic switch.

(1) If we put a receiving tank in the basement, will a 1-inch pipe supply water enough to keep the water system going, or at least supply enough for domestic purposes? The house will have two bathrooms, a sink and two sill cocks.

(2) Or is it practical to connect pump suction direct to city main, thereby saving the cost of a receiving tank in basement?

(3) What size pipe should be laid up the hill to supply the pump with a direct connection?

The shallow well pump will lift water 22 ft., which with the 6-ft. head we already have would give us a 22-ft. head at foot of pump suction, thereby requiring a smaller pipe to deliver a given quantity of water at this point than to a receiving tank in basement.

Please let us have your solution in the "Question and Answer" Department of "Domestic Engineering."

North Carolina. M. G. M.

We are afraid you will be somewhat disappointed with the pressure on top of hill when you run the supply line up. The water certainly will not rise to the reservoir level, on about 2½ to 3-pound pressure by the gauge at your proposed pump, unless, of course, all the rest of the town is shut off and the water has a chance to rise to its natural level.

The actual condition is no doubt a considerable drop in pressure at the road, below the normal hydrostatic pressure, due to friction caused by water being drawn off in the town.

If we had that job on hand we would go about it this way:

Place a reliable pressure gauge on the water works system as close to the place where you intend to tap the main as possible. Take regular readings of this gauge for a week or so, reading it at 8 a. m., about 3 p. m., and 12 midnight, or 1 a. m. Note the pressures exactly. Tabulate them. See the difference between day and night pressures.

Then decide upon what may be a safe pressure to depend on. You may find that there are times when the pressure will be so low that the water will not run much higher than half way up the hill. This will be when the town is using water most freely.

But at night the pressure may rise sufficiently to give a gravity supply on top of the hill. You should determine that the first thing.

If you find that the pressure is not enough to raise the water within 20 ft. of the pump (measured vertically), you have a problem on hand that will tax your ingenuity. You can determine how high the water will rise by gravity by multiplying the pressure in pounds per sq. inch by two. That should be a safe factor.

For example you may find the pressures run about the following ratio:

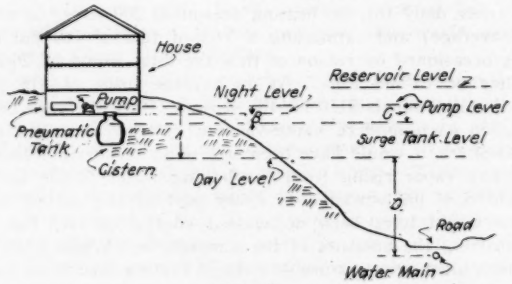


Fig. 2.

8 a. m., 50 lb.; 3 p. m., 55 lb.; 1 p. m., 70 lb. In this case you may figure on 65 pounds, say, from midnight to 6 a. m., or 6 hours.

This means that the water will stand approximately 130 vertically in the line that runs up to the new house. If that level comes above the cellar floor—say 5 ft. or more, then you can easily have a suction tank in connection with the pneumatic outfit. A suction tank would be very convenient particularly if there is much chance of the water pressure

at any time being below the normal you figure on. The surge tank is really a storage tank in addition to the pneumatic tank.

If, however, the aforesaid night water level does not reach 5 ft. above the surge tank, then you may have to connect the pump suction direct to the supply line so as to pull the water up. That will help to the extent of about 25 ft. vertically below the pump level.

Study Fig. 2. This is a diagram of assumed levels. You will have to find the levels A, B, C and D on the job yourself, to be accurate.

If the height A is less than 22 ft., you should have no trouble in obtaining a good supply for the house by installing a pneumatic system in the basement. But your tank should be unusually large—say twice the usual capacity.

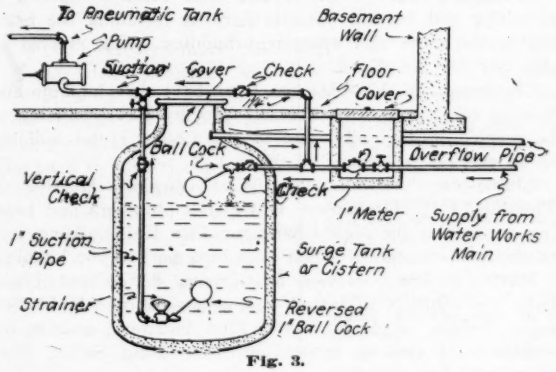


Fig. 3.

The pump also should be provided with a motor quite large so that it may easily handle the heavy suction.

In such a case the suction pipe should be not less than 1¼ inches, unless the day level line is much higher.

If the night level line does not rise higher than 5 ft. above the inlet to surge tank which should be underground, there is little use in having such a tank. The supply line in this case also should be 1¼ inches, although a 1-inch ball-cock at the surge tank should be sufficient.

The surge tank may be under the cellar floor, and built of cement concrete like an ordinary rain water cistern. It must be water-tight. A suction through the surge tank is shown in Fig. 3.

In this sketch we have arranged all connections so that the pneumatic system can have a supply automatically and without attention either from the surge tank or from the main direct.

If the water rises to fill the surge tank during the night, so much the better. You then have that supply on hand. If not, the pump can draw directly from the main, the reversed ball-cock on strainer end of pump suction automatically closing when surge tank is drained down. This is to prevent the pump from drawing air up the surge tank suction pipe at any time. When the surge tank fills, this reversed ball-cock opens and allows the pump to draw from the tank.

The three check valves shown are necessary. Check valve on surge tank suction line prevents the city water from by passing the inlet ball-cock and overflowing the cistern.

The check valve back of inlet ball-cock prevents the pump from sucking air in through this ball-cock. The check valve above the basement floor prevents siphonage of surge tank back into the water mains.

The remainder appears to be all quite clear, the meter and shut-off valve being in a manhole. The mouth of surge tank should be about 6 inches above cellar floor, made water-tight and provided with a dirt-proof manhole cover.

This is a sanitary arrangement and is probably the best you can adopt for the peculiar conditions you have to meet. But before going further be sure to get your levels. Then you will know definitely whether it is possible or not to get a supply at all.

Remember if your night level does not rise high enough to fill a surge tank, then such a tank is useless. Also remember that if night level does not come within 25 ft. (vertical) of the pump cylinder, you will not get any water at all even by a direct suction connection to the main.

In the latter case you will have to install the pump down the hill somewhere at a point well below the day level line; or better still, get the water company to boost the pressure, if they can.

RELIABILITY OF PRESSURE RELIEF VALVES ON TANKLESS WATER SUPPLY SYSTEMS.

Editor, "Domestic Engineering":—Please observe sketch, Fig. 1, which is a direct tankless automatic house pump, and advise if you think it good practice, or engineering, to use check valve in service line to range boiler, even though a safety valve is installed? We know that if safety valves are not frequently operated, they usually refuse to function when they should. It seems that in this plan the check is installed to hold the excessive pressure off the impeller. Would it be better to discharge pump into a pneumatic tank of about 40 gallons, using the check between pump and tank? This, it seems, would give sufficient room for expansion for the heated range boiler.

Illinois. R. W. F.

It all depends upon the kind of relief valve used. Some pressure relief valves will stick to their seats, and when they do they are useless.

Others do not, and can not stick to their seats. They are useful and reliable at all times.

The pneumatic tank you suggest will, of course, compensate for the expansion of the water in the range boiler and so relieve strains from this cause. A large air chamber, one

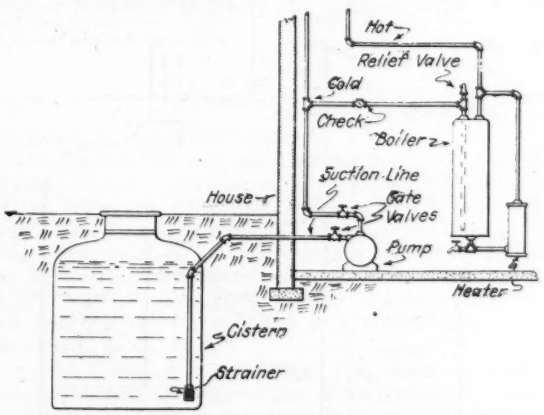


Fig. 1.

having a capacity of, say, 20 per cent of the range boiler, should do the same thing. But in any case you should have a relief valve somewhere. It may be on the pump discharge pipe, if you provide the aforesaid large air chamber on the hot supply pipe from boiler.

One of the troubles, which we would expect from a common relief valve placed as shown in Fig. 1, is that the valve would be dripping more or less at intervals. This drip will run on the floor if not piped up to some suitable delivery point, such as over and into the kitchen sink.

Certainly we must consider the fact that impeller pumps usually cannot raise a pressure high enough to burst a range boiler. Probably you will find that the pump in question is designed so that its maximum pressure is about 60 pounds

or less. If that is so, then the relief valve is necessary only to take care of boiler water expansion, not to take care of over pressure from the pump itself.

If that is so, then a large air chamber fitted to the boiler something perhaps like Fig. 2, would act as a reliable expansion tank to take care of the expansion.

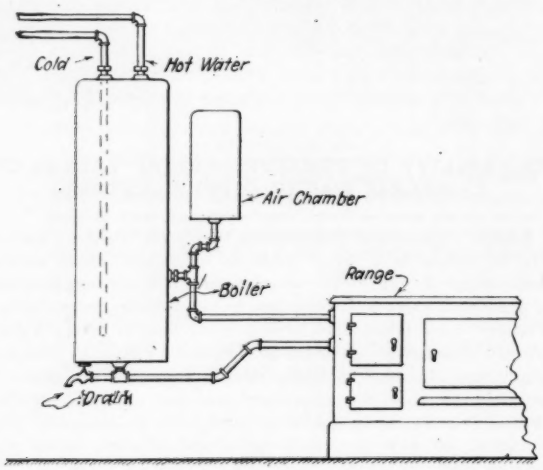


Fig. 2.

By connecting it to the flow pipe from heater as shown, it should be automatically self-replenishing.

Should the boiler capacity be sufficient to warrant you in reducing it, say, 20 per cent without cutting down the hot water storage too much, you may connect the top of the boiler into an air chamber substantially as in Fig. 3. An air-tight copper inner tube, say, 1 ft. long, is sweated into the brass boiler coupling of the hot water pipe to fixtures.

The cold water inner tube is also of copper, and sweated into the other coupling. Its vent hole is down 1 ft. from

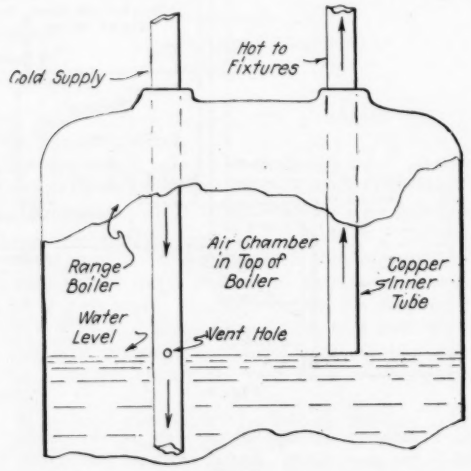


Fig. 3.

top instead of at top as in usual practice. This gives an air-tight, large air chamber at top of boiler, which should also be self-replenishing.

The water, in expanding, compresses the air here and so does not exert undue strain on the boiler. Either one of these schemes should fill the bill in a system where a low pressure impeller type pump is used with a relief valve on its outlet.

When in doubt, ask "Domestic Engineering."

Middletown, Conn.—The Mattes Plumbing and Electrical Co., 526 Main Street, has the heating contract on the annex building to the State Capitol building in Hartford.

Middletown, Conn.—The Kelsey-Umba Co., Inc., 185 Court Street, will install plumbing and heating systems in the Mullbrook Dairy, and the plumbing in the Cromwell school building.

Covington, Va.—J. C. Myers, who recently opened a plumbing and heating business here, is installing the heating in the store and apartment building being erected in this city for Mr. Kead.

Charleston, W. Va.—Meyers Bros. have the plumbing and heating contracts on the $120,000 Worthy Hotel building to be erected in that city, and in the Logan Hotel building to be erected in Logan, W. Va.

Charleston, W. Va.—The West Virginia Heating & Plumbing Co., Hale Street, will install plumbing and heating systems in the New Charleston City Hall building, and in the comfort station which is to be a part of the building.

Hartford, Conn.—Bevier & Gleason, 8 Orchard Place, have the contract to install heating in the new Odd Fellows' Temple on Main Street, East Hartford, and in the residence of Arthur Squires also on Main Street, East Hartford.

Middletown, Conn.—Brown Bros., 146 Main Street, will install plumbing and heating in the four-story apartment, store and garage building to be erected here for Charles Mainson. The heating in the Cromwell school will also be installed by this firm.

Huntington, Va.—The J. H. Druen Co., 613 Ninth Street, has the plumbing and heating contracts on the $250,000 residence of Fred C. Prichard to be erected here. Plumbing and heating systems in forty-three other residences will also be installed by this company.

Covington, Va.—F. M. Rogers has recently opened a plumbing and heating business at 211 Wills Street.

Kingston, N. Y.—Fred M. Dressel, for the past seven years plumbing inspector in this city, has just opened a plumbing and heating establishment at 179 Elmensdorf Street.

Mount Vernon, N. Y.—The Cottage Hardware, Plumbing & Heating Corporation has recently been incorporated in this city with a capital of $20,000. The incorporators are C. J. and J. H. Stiller and N. C. Stephens.

Petersburg, Va.—The plumbing and heating firm of Rose & Kitchen is now being operated by W. D. Kitchen who will, beginning May 1st of next year, conduct the business under his own name.

Bethlehem, Pa.—O. P. Walbert and R. A. Burlingame, proprietors of the South Bethlehem Plumbing Co., 453 Montclair Avenue, have just announced that they will hereafter conduct their plumbing and heating business under the firm name of Walbert & Burlingame.

IT PAYS *to* EMPHASIZE QUALITY

EDITOR'S NOTE:—By using one of these Editorials each week in your newspaper advertising you will help to educate your community in the true facts of plumbing and heating merchandising. Such education will create good will and build your business. The more the public knows the better your service will be appreciated. Take one Editorial a week and reprint it in the upper left corner of your regular advertising space. Have it set in bold-faced type, with rule or border around it, as indicated on this page. This will cause the Editorial to stand out and make it easy to read. The use of these Editorials from week to week will not add a dollar to your advertising expense, but they will help along sales.

YOU may remember this advertising slogan: "Not How Much, but Oh! How Good." It did great work for many years. It was first used to advertise a brand of candy. It emphasized quality. Once quality is lodged in the public mind, price cuts so little ice as to hardly make a clink in the pitcher. This slogan is like another that has been frequently used. It is this: "The Quality of the Service is Remembered Long After the Price Has Been Forgotten." Perhaps these two slogans have not been used by the plumbing and heating trade, but they could be used with profit.

If there is a business on earth that ought to keep quality in the foreground, it is the business of plumbing and heating. Stop and think of this for a moment. Plumbing and heating deal with the health and well-being—the very life—of the people. This being true—and you know it is—why shouldn't quality be emphasized? Educate the people to understand and appreciate the value of plumbing and heating, and, at the same time, talk quality. Do this, and as fast as people are educated, they will demand the best.

It is with these two thoughts in mind—health and quality—that we offer the Advertising Editorial, "Here's to Your Good Health."

Such editorials will help to take the public mind away from what it regards as "high prices." When a public begins to think about quality—that the best is the cheapest—that good health is worth more than money—contractors will find it easier to sell better equipment and charge for the highest class of work. And the bills will be paid with greater promptness and cheerfulness.

When a man knows what he wants, and knows that he wants it, he doesn't waste much time over a few dollars in price. Few people argue over a doctor's bill, even when it seems high. And have you ever heard an argument with a druggist over the cost of a prescription? The sick man knows he must have the medicine. And because he knows this, he doesn't argue. When people realize that they must have a good heating plant, and a bathroom, and a kitchen sink, and laundry tubs, and other modern conveniences, the whole attitude of dealing with the plumber will change. When the change comes, it will be a happy day. But change never comes without effort. So, then, work for the change which will bring better trade conditions and a fuller measure of prosperity.

A Series.—No. 8.

HERE'S TO YOUR GOOD HEALTH.

WHEN you're sick, what do you do? You get the best doctor, the best nurse, the best medicine, the best food—the best of everything. Hang the expense! The cost doesn't matter. You're flat o' your back, and it is worth any price to be up again. That is how you feel when you're sick.

But when you're well—how do you feel then? Isn't it worth as much to keep well when you are well, as it is to get well when you're sick?

Of course it is. It is worth every bit as much—and more. So, the way to keep from getting sick is to keep well. And one of the surest ways to keep well is to have your home provided with the very best plumbing and heating. Insist upon the best—the best materials and the best workmanship. To do anything else is to take chances with health and life.

Suppose the best does cost a little more. Surely good health, increased energy, comfort, happiness—surely these are worth any price.

A home properly heated and ventilated, with a bathroom which makes regular bathing easy, can prevent enough sickness in a single year to save the cost of the very best plumbing and heating equipment. Save the cost, and get the most out of life while you're doing it.

Besides using the advertising editorials, plumbing and heating dealers might make a little closer study of salesmanship. In talking with a prospective buyer, you could point out the different ways in which a plumbing or heating job might be handled. And in doing this make it a point to always emphasize the best, the most complete equipment; that if the home is plumbed and heated as you know it should be, it will be better, last longer, and give far greater satisfaction. If this is done sincerely and with the welfare of the customer in mind, he will not quibble over a few dollars in price. The more expensive way will be regarded as the cheaper way if everything is carefully explained.

Some of this may seem like beautiful theory. But try it—practice it—and watch the result. Not long ago the writer of this series saw a hardware dealer in a small town sell a wagon to a farmer by using this sincere brand of salesmanship. Last month he saw a painter land the biggest painting job in his neighborhood by showing the customer how he should have his new home finished and decorated. And the customer spent a thousand dollars more than he had intended to spend.

It was Theodore Roosevelt who said, "Every man owes some of his time to the upbuilding of the profession to which he belongs." He owes it to himself—to his own individual interest—as well as to the profession or business in general. Because of this, time spent in educating the public to appreciate the value of plumbing and heating and to appreciate quality is time well spent. Such time loaned from month to month pays a good rate of interest. In fact, the interest is compounded. It grows and grows. For after all is said and done, we get back just about what we give out. Yes, just about.

Funds on Hand by the War Finance Corporation available for export and agricultural loans total $397,784,868, the corporation announces. Total loans made to date to agriculture and for exports was estimated at $133,547,215, comprising $52,400,000 to agricultural co-operative associations, $72,447,606 to banking and financing institutions and $8,699,608 to exporters.

LEGAL QUESTIONNAIRE

*Have I Any Mechanic's Lien Rights Under a Contract with a Man, Whose Wife Owns the Real Estate?—This Question is Answered in a Most Careful Manner**

By "The Judge"

Mechanic's Lien Rights Under Contract With a Husband, Where Wife Owns the Real Estate.

Editor "Domestic Engineering":—I have just entered into a contract for the alteration of a bath room with the husband of the owner of the premises. From what I can learn the husband is not a very responsible party, financially, and I am wondering whether it is possible for me to have a mechanic's lien on the wife's property where my contract is with the husband. My contract with the husband is in the form of a written contract which I use in my business and makes no mention of the wife.

Massachusetts.

Answer:—Your question is one which has been answered many times by the Supreme Court in your state, under a now obsolete statute. The general principles of law involved are well settled, but the kind of case which you set out is one of that class which depend for an answer upon the particular facts in each case. It is what may be called an "if" case; that is, if it can be proved to the satisfaction of the court that the husband was acting as the agent of the wife, you may have a right to a mechanic's lien, otherwise not.

As the statute on this phase of the lien rights of builders and workmen in your state has been recently somewhat radically changed, and as there have therefore been comparatively few decisions by the court of final resort, it will be necessary for us to determine the answer to your question by arguing from the analogy of cases which were decided under the old law.

The pertinent part of the old statute read: "A person to whom a debt is due for labor performed or furnished or for materials furnished and actually used in the erection, alteration, repair or removal of a building or structure upon land, *by virtue of an agreement with or by consent of the owner of such building or structure or of a person having authority from or rightfully acting for such owner*.. shall... have a lien upon such building or structure and upon the interest of the owner thereof in the lot of land...."

The new statute which is now in force reads: "A person entering into a written contract *with the owner of land* for the whole or any part of the erection, alteration, repair or removal of a building or structure upon land.... shall have a lien upon said building or structure and upon the interest of the owner in said lot of land as appears of record... ."

The principal change which appears in the new statute is that the contract must be in writing and must be with the owner. This would seem to eliminate lien rights in those situations which gave a lien right under the old statute in cases where the work was done with the consent of the owner or under a contract with an agent of the owner. There is a provision in another section of the new statute which contains practically the same wording as the old statute, to the effect that persons who furnish personal labor shall have a lien without the need of a written contract.

Under the old law it required comparatively little evidence to prove that a husband was acting as the agent of his wife, due to the fact that most juries would find that because of the relationship between the owner and her husband, an agency was undoubtedly intended. What would be the ruling of the courts under the new law is a question. The new statute requires that the contractor file a notice in the registry of deeds to the effect that he has a written contract *with the owner of the land*. It seems clear, therefore, that until the courts have ruled upon this question, you would be taking a chance if you filed such a notice on the ground that you had a written contract with the owner of land, in your case the wife, on the supposition that you could later claim that the husband was acting as agent for his wife.

I say "taking a chance" for the new law has intentionally left out the phrasing of the old law which included the words: "...or of a person having authority from or rightfully acting for such owner..." The former law gave a lien right to a person who had a contract with the owner or with a person who in fact was his agent. The later law says that the contract must be with the owner and does not say anything about a contract through an agent of the owner.

It is a familiar rule of the courts that the act of a duly authorized agent is the act of the principal. Looking at the subject from that angle it would seem that a written contract with a duly authorized agent would be a written contract with the owner. Mere verbal changes, such as a use of different words to convey the same meaning, do not change the meaning of a statute; but where a new statute makes such a change as the elimination of reference to an agent, as this new statute does, it is given weight by the courts when construing the intention of the legislature.

You may therefore appreciate the fact that if you have a written contract with the husband of the owner of the premises and file a notice in the registry of deeds to the effect that you have a written contract with the owner of the land, you are basing your lien rights upon the possibility that you will later be able to persuade the court that the legislature, although it specifically omitted to mention a contract with an agent of the owner, still intended to give you the right to say that a written contract with an agent is in reality and in the eyes of the law, a written contract with the owner.

The safe thing for you to do, as your question seems to imply that you have not started work, is to secure a written contract with the wife. On the other hand, if the case you present were one in which you had complied with the law's requirements in all other respects, but had a written contract with the husband of the owner, a pretty good argument might be made that you had a written contract with

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*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the Very Nature of the Service, which is rendered without a personal interview.—Editor.

the owner of the land, which argument would be based upon the decisions along these lines which your courts have handed down under the old law.

In one of the cases decided in your state under the former statute the person who claimed the lien right had a contract with the husband of the owner. Both the husband and the wife testified that the husband was not acting as an agent, but the court found from other evidence presented that he had the general management of the premises, that the wife knew that the contractor was doing the work, that she gave him directions as to parts of the work, and that the husband was in fact the duly authorized agent of the wife. This is a sample of a long line of cases extending over a period of many years. Under the former law the courts went a long way to give lien rights in such cases, and agreed with the "man on the street" that a wife should not be permitted to hide behind the shield of a mere matter of form and say that her husband was not acting for her in relation to her property.

It can be argued, and perhaps successfully, against the granting of a lien right in such a case as you have proposed, that if you file a notice in the registry to the effect that you have a written contract with the owner of the land, you know at the time the notice was filed that the husband was the agent of the wife and that therefore you should have insisted that the wife sign the contract. The new statute was placed upon the statute books at the insistence of banks and others who made it a business of loaning money upon the security of a real estate mortgage. The argument they made was that they should be in a position to know at the time the money was loaned, just what incumbrances were upon the real estate. Under the old law it sometimes happened that the first steps in establishing a lien were not made a matter of public record at the registry of deeds until almost thirty days had elapsed after the last work was performed on the building. This required that the person loaning money to the owner should take upon himself the responsibility of deciding whether third parties were entitled to a lien and this could not be ascertained by any public record.

In your own case let us suppose that you file a notice of a contract in the registry of deeds, setting out that you have a written contract with the wife. Two arguments might then be made. One would be that the reason for the law had been sufficiently taken care of, namely, that everybody had notice that you had started to claim a lien on the property, and that later you could show that a contract with a duly authorized agent was in your hands. The other argument would probably be that no written contract with the owner was actually in existence except in the eyes of the law which says that the contract of an agent is in effect the contract of the principal. The latter argument would prevail unless the courts should rule that the legislature, by its wording of the statute and by its elimination of the explicit statement that a contract with an agent is sufficient, intended that a written contract must exist in which the signature of the actual owner appears. As I have said, this latter argument might not prevail, but it is not necessary to take the chance that it might if you secure the wife's signature before you begin work.

In those states which are still operating under statutes similar to the one which existed in your jurisdiction prior to the enactment of this later law, it is very probable that a lien would be given to the contractor under the circumstances which you have stated. The mere direction as to the location of a bathroom fixture or a steam radiator, by a wife who is owner of the property, will usually give the contractor a right to a lien even though he has dealt entirely with the husband, and in some instances, even though the contractor has taken a note for the amount due under the contract from the husband. In such cases the courts look to the substance of the situation and not to its form. This attitude of the courts is about the only thing which would give you a chance to win in your present situation, unless you secure the wife's signature.

Obituary

Frank E. Cotton.

Frank E. Cotton, for many years office manager and cashier of Braman, Dow & Co., of Boston, Mass., and widely known through his business relations with the plumbing and steam fitting trade, died December 29th, at his home in Malden, Mass. He was a native of Hamilton, O., a graduate of Amherst College in 1883 and for a time was located in Lanark, Ill. He was a member of the Malden First Congregational church, the University Club, New England Historical-Genealogical Society and many other organizations. He leaves a widow and two daughters.

Augustus S. Percival.

Augustus S. Percival, for many years a member of the plumbing firm of Taylor & Percival in Waltham, Mass., died December 21st, in Ajo, Arizona, where he has been since Thanksgiving in search of health. He was born in Orleans, Mass., May 5th, 1860, learned the plumbing trade on Cape Cod and then went to Waltham, where he was at first employed and afterwards became a partner with J. B. Taylor in the plumbing firm of Percival & Taylor. The business was sold early last month to William Stokes, a report of which appeared in "Domestic Engineering" at that time. Mr. Percival was suffering from a serious throat affliction and immediately went West, accompanied by his wife. He was a member of Trinity Congregational church, of the Masons, Red Men and Workmen.

Stocks and Other Security Holders cannot deduct from gross income any amount claimed as a loss merely for account of shrinkage in value of securities through fluctuations of market stocks, the Treasury has ruled in interpreting provisions of the 1921 revenue act. If a stock of a corporation becomes worthless, however, its cost or other basis may be deducted by the owner in the taxable year in which the stock became worthless, provided a satisfactory showing of its worthlessness is made, as in the cases of bad debts. Where banks, or other corporations subject to supervision by Federal State or equivalent authorities, charge off stock as worthless or write it down to a nominal value, it was held that such stocks shall be presumed worthless for income tax purposes.

The Plumbing Establishment of R. H. Holtzworth in Huntington, W. Va.

CODE *of* ETHICS *for the* BUILDING TRADES

Recently Organized Building Trades Congress of New York Adopts Code to Stimulate Confidence of Home Builders in Building Industry.

THAT the plumbing and heating contractors of New York will find the newly organized Building Trades Congress of great constructive value to them in their work, and will give it their enthusiastic support when its scope and purposes become fully known to them, is the belief expressed by Richard A. Wolff, secretary of the Congress, and also secretary of the committee appointed by the Congress to draw up the Code of Ethics for the Building Trades. Mr. Wolff is, himself, a well known heating contractor, being a member of the firm of Wolff & Meunier, New York City.

The aim of the promoters of the Congress has been to line up all persons and industries connected with the building of a house from the time the lot is bought to the moment when the finished house is handed over to the owner, the plumber and heating contractor, of course, occupying an honorable position in this category.

It is felt that the badge of membership in such an association will have both a moral and a business value. Whatever the rights or wrongs of it, the average home-builder is scared at the thought of entrusting perhaps the greater part of his life savings to people of whose business he usually knows little or nothing.

"Our belief is that when a home-builder has to decide between a number of firms, he will be inclined to give the preference to that one which has signed its adherence to our Ethical Code," said Mr. Wolff. "He will feel a greater confidence in such a man or firm. He will know he isn't going to have a 'lot' palmed off on him at an exorbitant value or be 'soaked' with excessive building charges or inferior material or poor plumbing or heating installations or electric wiring. He can deal with firms who are members of the Congress right through from the buying of the lot to making the last payment for sub-contracting work, and when he has done that he'll feel satisfied that he has a home that is going to give him good service both in endurance and comfort, and also in the avoidance of those irritating minor repairs which in some cases occur far too early after a house is completed."

Since the original draft of the Code of Ethics was made public several amendments and alterations have been made in its wording. The document is now ready for the printer and in its corrected form reads as follows:

Code of Ethics for the Building Industry.

General.—Article No. 1.

It is Unethical for Anyone Engaged in the Building Industry or Any of its Branches:

Sec. A.—To unduly or improperly increase the cost of the work or to produce work or workmanship inferior to that contracted for.

Sec. B.—To falsely or maliciously injure the reputation or business of another.

Sec. C.—To offer or accept commissions intended to influence sales or contracts.

Sec. D.—To endeavor to circumvent the fair and reasonable enforcement of building ordinances and safety and sanitary codes.

Sec. E.—To resort to or countenance "Shopping."

The Owner.—Article No. 2.

Sec. A.—To call for unnecessary or full estimates on tentative projects, or from unacceptable bidders or to withhold proper facilities from those estimating.

Sec. B.—To refuse credit data and statement as to reality of the project.

Sec. C.—To deal directly with the contractor where an engineer or architect has been employed for full services, including supervision.

Sec. D.—To endeavor to improperly influence the architect's or engineer's decisions as to contract obligations.

The Banker.—Article No. 3.

Sec. A.—To fail to give due weight to the community value of improvements for which loans are desired.

Sec. B.—To fail to acquaint the borrower with all conditions (especially as to approval of materials and construction) under which the loan is made.

Sec. C.—To overload building costs with fees, commissions or bonuses not legitimately earned.

The Real Estate Broker.—Article No. 4.

Sec. A.—To misrepresent conditions or conceal any facts having an important bearing upon the real value of a property.

Sec. B.—To advise a type of development opposed to the community interest.

The Architect and Engineer.—Article No. 5.

Sec. A.—To act in any other than a judicial capacity in determining contract obligations; or to fail to require full performance equally by owner and contractor.

Sec. B.—To require a contractor to perform for him any part of the service which is generally recognized as the architect's work.

Sec. C.—To cover possible oversights or errors by indefinite clauses in contract or specifications.

Sec. D.—To withhold certificates for payment when properly due under a contract.

Sec. E.—To engage in the building trades.

The Contractor.—Article No. 6.

Sec. A.—To give, knowingly, work or workmanship inferior to that contracted for.

Sec. B.—To endeavor to supplant the architect or engineer with the owner.

Sec. C.—To submit to the owner directly, without the architect's approval and knowledge, any proposals or estimates.

Sec. D.—To fail to recognize his moral obligation to sub-contractors whose bids he has used in making his own proposal.

Sec. E.—To knowingly or carelessly under-estimate the value or time of completion of any work.

Sec. F.—To withhold payment to sub-contractors and dealers for work or for materials for which he has received payment.

Sub-Contractors and Material Dealers.—Article No. 7.

Sec. A.—To knowingly mislead through trade customs or terms, as to the real cost or quality of work or materials, and to mislead as to the time of completion or delivery of materials at times that cannot be fulfilled.

Labor.—Article No. 8.

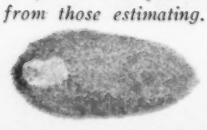
Sec. A.—To restrict the quantity or quality of the output of the individual.

Sec. B.—To increase cost through arbitrary rules as to number of workmen employed or use of plant and equipment.

Sec. C.—To deny to any man the opportunity to learn, and when qualified, to practice a trade.

Sec. D.—To abandon the work pending the decision of disputes between trades.

With the code is an "Exposition" which reads as follows:



An Exposition to Accompany the Code of Ethics for the Building Industry.

Introduction.

"Ethics—The science of right conduct and character; the science which treats of the nature and grounds of moral obligation and of the rules which ought to determine conduct in accordance with this obligation; the doctrine of man's duty in respect to himself and the rights of others."

Century Dictionary.

The Congress of the Building Industry of the City of New York seeks a high standard of conduct and character among its members, in respect to themselves and the pubic whom they serve. As a safe-guard of the important financial, technical, aesthetic and industrial interests entrusted to its members, it offers the following exposition relative to ethical practice, and urges upon its members and the public compliance of the principles laid down:

The Building Industry, broadly considered, includes the owner, the real estate broker, the banker, the loan broker, the architect, the engineer, the contractor and sub-contractor, the material manufacturer and dealer, and labor. Among certain of these groups professional codes of ethics have long been in use, but the Congress believes that there is need for the development of a general code that will define fair dealings for all. No set of rules can be formulated which will particularize all the duties of all branches of the industry in their relation to the public and to each other. The following principles should, however, govern and serve as a guide. All ethical rules may, in the final analysis, be comprehended within the statement of the Golden Rule.

General.—Article No. 1.

Sec. 1.—No one engaged in the industry should, by acts, agreements or otherwise do anything that will unduly or improperly increase the cost of his work, product or commodity, nor deliver inferior quality or less quantity of work, products or commodity than engaged or contracted for.

Sec. 2.—No one engaged in the building industry in any of its branches, should falsely or maliciously injure, directly or indirectly, the reputation, prospects or business of another. The repetition of rumors, not positively known to be true, is but one degree less reprehensible than the making of a statement known to be false. Nor should attempts be made to supplant another after his employment.

Sec. 3.—No one engaged in the building industry should offer or accept commissions intended to influence employment, sales or contracts. Such commissions add an overhead cost which the public must eventually pay and which has no economic or moral justification.

Sec. 4.—Everyone engaged in the building industry should participate in those movements for public welfare in which his training and experience qualify him to give competent and disinterested advice. He should support public officials in the proper enforcement of building codes and safety regulations and should take an active interest in the formulation and improvement of such codes.

Sec. 5.—No one engaged in the building industry should resort to or countenance the practice of "Shopping." By "Shopping" is meant any misrepresentation as to the relation of any bid to another bid, the use of the bid of a bidder to whom the awarder would be unwilling to award the work in order to reduce the bid of an approved bidder, or the use of fictitious bids in the effort to reduce legitimate bids.

The Owner.—Article No. 2.

Sec. 1.—The owner is a part of the building industry, as his interests are closely bound up with those of the members of the industry with whom he enters into contractual relations. It is, therefore, important to him, not only that the principles of fair dealing as between members of the industry should be observed by those whom he employs, but that his own conduct should be guided by the same principles.

Sec. 2.—The owner should realize that the cost of estimating is a serious item of overhead expense, for which he himself must finally pay. He should, therefore, not call for a detailed estimate when an approximate estimate would serve his purpose. Nor should he call for numerous alternate estimates unless he is seriously considering the use of such alternates. He should not call for estimates from any contractor to whom he would be unwilling to award a contract. In short, he should not expect to receive a service unless it is his intention to give proper consideration therefor, either through the payment of money or by giving to him who renders the service a bona fide opportunity to secure work, professional or contractual. In order that estimates may be intelligently prepared, it is necessary for the owner to see that full information and facilities such as access to site, the use of plans, adequate time, etc., are afforded to all those estimating.

Sec. 3.—As the owner expects to receive full credit information as to those persons with whom he contemplates entering into contractual relations, he should accord the same privilege to them.

Sec. 4.—Where an owner has retained the services of an architect or engineer, for full services including supervision, all his business relations with contractors or others engaged upon the work, whether the taking of estimates, the award of contracts, the issuance of orders for changes or instructions to the men in the field, should be carried on through the agency of the architect or engineer.

Sec. 5.—While the owner is entirely free to exercise his own judgment as to the employment of an architect or engineer, or to employ the contractor to make plans and specifications for the building which he is to construct, he should understand that in the latter case, he is placing upon the contractor the moral responsibility for acting in a judicial capacity with reference to questions which may vitally affect his (the contractor's) interests.

Sec. 6.—Where the owner has retained the services of an architect or engineer, he should understand that after a contract has been let, the architect or engineer becomes the official interpreter of the contract and must insist upon its faithful performance by both parties. The architect acts as designer, supervisor of construction and professional advisor to the owner, yet, as the disinterested interpreter of the obligations of both parties to the contract, it is his duty to see that both parties fully and promptly fulfill their respective obligations.

The Banker.—Article No. 3.

Sec. 1.—The banker, whose funds are those of the public entrusted to his care, is obligated not only to conserve and wisely invest them, but also to give due weight to the community value of the improvements for which loans are desired. Especially in times when available funds are limited, he should exercise a wise discretion in placing them where they may produce the greatest community benefit.

Sec. 2.—Those charged with the loaning of funds upon buildings should possess or make use of expert knowledge of the construction industry in all its branches. The lender's requirements as to building details and specifications should be clearly stated to the borrower in advance of making the loan. Loans should be based upon competent plans and estimates of cost. After construction has commenced, the lender should exercise such supervision as to be assured that the borrower is fulfilling his contract obligations, both as regards quality of construction and payments therefor. But in his interpretation of plans and specifications at any time after a loan is accepted and during course of construction he should safeguard the borrower's interests as well as his own wherever the security is not impaired. He should definitely ascertain that architect and engineer; general and sub-contractors; material men and labor are being fully paid as the work progresses in accordance with contract obligations.

Sec. 3.—The machinery of financing building construction

should be as simple as is consistent with the proper safeguarding of loans. The loan broker, who has a sound knowledge of building and real estate values and a right regard for the moral obligations of his calling performs a valuable service to both lender and borrower, but fees or commissions paid to other middlemen or agents who contribute no constructive service are an overload upon the building industry for which there is no economic justification.

Real Estate.—Article No. 4.

Sec. 1.—A broker, in presenting the advantages of a property to a prospective purchaser, should not permit his desire to make a sale to affect the accuracy of his statement. His relation to both buyer and seller should be a professional one, and his expert knowledge should be made available to both.

Sec. 2.—He should consider the proposed improvement of the site in connection with its community value or its effect upon the neighborhood. The erection of a building which will tend to deteriorate the character of a neighborhood is opposed to the public interest, and should not be furthered.

Sec. 3.—He should not attempt to sell land to be improved for a definite use, if he knows that there are subsoil or other conditions which would render it unsuited to such use or unduly costly therefor.

Sec. 4.—In endeavoring to interest a prospective purchaser by recommending a type of improvement and giving estimates of cost of such improvement, or estimates of the return upon the investment in improvements, he should quote no figures which are not prepared by those qualified to estimate construction and operating costs.

Sec. 5.—He should not accept commissions from architects, engineers or contractors desirous of influencing retention or contracts.

The Architect and Engineer.—Article No. 5.

Where the engineer's relation to the building industry is a professional one, then it is so similar to that of the architect, that the following statement of ethics as applied to the architect applies equally to the engineer.

Sec. 1.—The architect's relation to his client is primarily that of professional adviser; this relation continues throughout the entire course of his service. When, however, a contract has been executed between his client and a contractor, by the terms of which the architect becomes the official interpreter of its conditions and the judge of its performance, an additional relation is created under which it is incumbent upon the architect to use his powers under the contract to insist upon its faithful performance by both parties.

Sec. 2.—The architect should furnish complete plans, specifications and details in sufficient quantity and should not require the contractor or sub-contractor to make any part of such drawings or specifications without payment, other than the usual "shop details." Under shop details are not included general designing, such as of steel or reinforced concrete structures.

Sec. 3.—As the architect decides whether or not the intent of his plans and specifications is properly carried out, he should take special care to see that these drawings and specifications are complete and accurate, and he should never call upon the contractor to make good oversights or errors in them, nor attempt to shirk responsibility by indefinite clauses in the contract or specifications.

Sec. 4.—As payments to contractors are usually based upon the architect's certificate, the architect should give immediate consideration to, and prompt action (whether favorable or unfavorable) upon the contractor's applications for payment. He cannot be a party to any desire on the part of the contractor to anticipate payments, nor on the part of the owner to delay such payments, when due under the contract.

Sec. 5.—The architect should not directly or indirectly engage in any of the building trades. If he has any financial interest in any materials or device, he should not specify or use it without the knowledge and approval of his client.

Sec. 6.—The architect should not receive any commission or any substantial service from a contractor or from any interested person other than his client.

The Contractor.—Article No. 6.

Sec. 1.—In a lump sum contract, the contractor is entitled to whatever profit he may be able to derive from his ability to make favorable purchases and from the efficiency of his organization, but no desire for profit can justify his failure to completely carry out the obligations, both expressed and reasonably implied, of his contract. In a cost plus fee contract, the contractor should regard himself as the owner's agent and all his work should be conducted with the single purpose of serving the owner's interest to the fullest extent. His efforts to carry on the work efficiently and economically should be as great as though he were himself to enjoy the resulting benefits.

Sec. 2.—In his relations with the architect, his attitude should be that of helpful co-operation for the owner's interest. In questions of design or the choice of materials affecting design, he should accept the architect's judgment as that of an expert and endeavor to secure the result desired by the architect. In questions relating to structural design or arrangement, or to materials and methods of construction, he should feel free to offer helpful suggestions to the architect. As the architect is the owner's professional and technical adviser, he (the contractor) should not endeavor to influence the owner against the judgment of the architect, unless satisfied that the owner's interests are likely to be seriously jeopardized.

Sec. 3.—In cases in which the architect is charged with the letting of contracts and the issuance of orders for changes, the contractor should submit his estimates to the architect and accept no orders except those issued by him.

Sec. 4.—As the general contractor in seeking a contract expects fair and disinterested consideration of his proposal by the architect and the owner, he should grant the same consideration to sub-contractors and material dealers whose estimates he has used in preparing his own proposal. As a general principle, the sub-contractor whose estimate has been used by the general contractor in making his own proposal, is entitled to first consideration in the awarding of the sub-contract. This principle carries with it the obligation on the part of the general contractor to use no estimate of a sub-contractor to whom he would be unwilling to award the work and assume responsibility therefor, in the event of his obtaining the general contract.

Sec. 5.—As the cost of estimating is an important element in the overhead costs of the contractor, he is entitled to a frank statement from the architect or owner as to the bona fide nature of the enterprise and the financial ability of the owner to carry it out, before incurring this expense.

Sec. 6.—The desire to secure a profitable contract should not be allowed to influence a contractor's judgment or the disinterestedness of his advice. Preliminary advice and estimates should be given with the utmost care, inasmuch as the owner's decision to purchase land and erect a building is likely to rest largely upon such estimates and advice.

Sec. 7.—In addition to the safeguards provided by law, the contractor should recognize that a broad obligation rests upon him to see that every reasonable provision is made for the safety and health of his employees and the public.

Sec. 8.—In fairness to all elements of the industry the employer should recognize some tribunal to which jurisdictional disputes should be referred for decision.

Sub-Contractors and Material Dealers.—Article No. 7.

Sec. 1.—No sub-contractor or material dealer should knowingly accept an order or contract that is given in good faith to cover complete cost but in reality will involve additional cost because of unusual or special trade or labor conditions or technical terms, the full meaning of which is not appreciated by his customer.

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How New York City Views *the* Installment Payment Plan

Interviews with Representative Metropolitan Master Plumbers Reveal That They Are Interested in Possibilities of Plan But Have Strong Doubts As to its Practicability in Their Own Local Field

By Frank Wall

NEW YORK master plumbers are decidedly "from Missouri" when it comes to a discussion of the idea of making plumbing and heating installations on the part-payment plan in the same way that talking machines, player-pianos, furniture, and even clothing, are now being successfully marketed. The city's plumbing and heating fraternity is greatly interested in the subject, and fully realizes its possibilities for developing increased business—if it can be put over. But as regards that "if," they are inclined to take the attitude that they have "got to be shown."

As it is always well to consider both sides of a question, some of the obstacles suggested by leading firms and individuals interviewed in discussing the practicability of the easy-payment plan as applied to the New York plumbing and heating industry are stated here for what they are worth. First, however, we shall quote two opinions decidedly favorable to the idea, which emanate from authorities who are in a position to discuss the subject from experience, even though that experience has not been obtained in the plumbing or heating contracting field.

The first of these favorable expressions comes from the Whalen-Crosby Company, of Newark, N. J. This concern is not identified with the plumbing industry. It is in the business of electric wiring and supplies, but in that field it is doing a substantial volume of business on the easy-payment plan. It has found the plan thoroughly practicable in every respect and is enthusiastic over its possibilities.

"We've given the installment system a thorough trial," declared Manager MacHale, of this concern, "and we are more than satisfied with the results achieved. We have added a considerable volume of business we otherwise would not have obtained, and I think I may say that our customers are quite as well satisfied as we are ourselves. It would seem to me, from our own experience, that the plumbing and heating contractor would derive great benefits from the adoption of this form of merchandising, and I can see no reason why it would not be just as practicable in his field as in the electrical contracting field."

The second favorable opinion expressed comes from an authority much more closely related to the plumbing contractor than the man above quoted. J. C. Noonan, sales promotion manager of the American Radiator Company, sees no reason why the master plumber shouldn't do business on the easy-payment principle, and points out that his own company is at the present time marketing domestic heaters on that basis and finds it a very satisfactory and profitable arrangement.

"I feel confident that it would work out fine in the plumbing contracting business," Mr. Noonan declared. "We've tried it with heaters and made money and other people have tried it with furniture and victrolas and pianos. That was what started us in the game, for we argued that if a man would buy luxuries on this system there was no reason why he shouldn't buy necessities also."

So much for the affrmative side of the question, and now for the "conscientious objectors." Probably there is no more intelligent representative master plumber in the state of New York than J. N. Knight, of J. N. Knight & Son, former president of the Manhattan Master Plumbers' Association, and for many years a leading factor in the industry. Mr. Knight's views on the subject, therefore, are worthy of careful consideration. "I have very serious doubts as to the practicability of the idea, so far as this part of the country is concerned," said this authority. "The case of the piano and heater people who've succeeded with the installment system isn't on all-fours with the plumbing trade. If a man buys a piano on the installment system and defaults, the company can take back the piano and there is no harm done, and the same applies to victrolas and heaters and all loose stuff; but a plumber can't recover in that way in case of default because the New York state expressly forbids the removal of fixtures from a house.

"If a man buys a lot for, say, $800, and builds a $5,000 house on it; that would mean about $300 for plumbing and $300 for heating. If the plumber puts in the installations and agrees to accept monthly payments and then the customer defaults, the plumber can obtain a judgment; but if the customer hasn't the money to meet it the case is deadlocked at once. The plumber has no further remedy, at any rate in this state. I understand that in the neighboring state of New Jersey, for instance, fixtures can be removed in case of a default, but then again you have to take into account the cost and depreciation loss of such removal.

"The only practicable method I can see," added Mr. Knight, "is for the home-builder to pay monthly installments into a local bank in the name of the plumber and himself, the installations to be put in when the payments are completed, or earlier, if the two parties agreed to that effect. It might be argued that the customer might as well save the necessary amount in his own account at the bank, but he would be liable to use the money for other purposes in the meantime. On the other hand, I have a recollection where installments were paid to the plumber—that was not in New York, and it was some years ago—and in some of those cases the plumber borrowed the money to meet pressing demands, and when the time came to put in the installations he was not in a position to do it."

"I never heard of the installment system being used by plumbers in this part of the country," said David Deigan,

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AMONG THE WHOLESALERS AND MANUFACTURERS

KRAUSS & ROBERTS SUCCEEDED BY THE KRAUSS SANITARY CO.

The plumbing and heating supply firm of Krauss & Roberts, Baltimore and Eden Streets, Baltimore, Md., was dissolved by mutual agreement, December 31, 1921, and W. P. Krauss will continue the business at the same location, under the name of Krauss Sanitary Co., while J. T. Roberts will continue in the same line of business at 329 North Gay Street, Baltimore, Md., under the name of J. T. Roberts & Bro.

OCCIDENTAL CO. IN NEW LOCATION.

The Occidental Company, of Cleveland, O., has moved from 8317 Euclid Avenue, to 8007 Euclid Avenue.

THEODORE KARR CALLED BY DEATH.

Theodore Karr, senior member and treasurer of the Karr Supply Co., of Belleville, Ill., died at his home in that city on Wednesday, December 21, in his 77th year, according to an announcement just issued by that company.

SELLS HIS INTEREST IN KOALSAVE VACUUM VALVE CO.

Hugh M. Smith, president and treasurer of the Koalsave Vacuum Valve Co., 101 Park Avenue, New York City, has sold his interest in that company to David A. Mount, who will continue the business under the same name and at the same address.

IMPROVEMENTS FOR LA BELLE IRON WORKS PLANT.

The Wheeling Steel Corporation, Wheeling, W. Va., is contemplating making large extensions to the present equipment of its LaBelle Iron Works plant at Steubenville, Ohio. Inquiries for new equipment are now out, and it is expected contract for the work will be awarded early in the year.

FINANCE COMMITTEE OF THE NATIONAL TRADE EXTENSION BUREAU HOLDS MEETING IN PITTSBURGH.

At a special meeting of the Finance Committee of the National Trade Extension Bureau, held in Pittsburgh, Pa., at the Wm. Penn Hotel recently, a great many matters were taken up which Wm. J. Woolley felt should be considered before the close of business for the year 1921 and the committee spent all day in going over these matters in detail. It was finally decided that a meeting of the entire board of directors of the Bureau should be held some time in January, at which time the board would give final approval of the program of the activities for the Bureau for 1922.

A great many constructive suggestions were made. Mr. Woolley will embody these suggestions in his proposal of the activities of the Bureau for 1922, which will finally be settled by the board of directors at the January meeting. It will be the purpose of the Bureau to make 1922 the most active year the trade has ever had, and the Finance Committee is confident that, if it can get the co-operation of the trade, there will be more plumbing and heating material sold and installed in 1922 than there ever has been in any year in the history of this country.

PLANS PREPARED FOR NEW PLANT.

The Philadelphia Steam Heating & Engineering Co., Juniper and Cherry streets, Philadelphia, Pa., has had plans prepared for the construction of a new two-story plant building, 60x120 ft., at 3316-3320 Lancaster Avenue. It is estimated that the new building will cost about $60,000.

COMMERCIAL REPRESENTATIVES OF STANDARD SANITARY MFG. CO. HOLD ANNUAL MEETING IN CHICAGO.

The annual meeting of the commercial representatives of the Standard Sanitary Manufacturing Company was held in Chicago this week. Results of the year just past were checked over, and plans formulated for 1922. Representatives from the western districts, especially the agricultural regions, reported that conditions are not such as to warrant any excess enthusiasm. All industries in that part of the country are very closely tied up with farmers and farming, and the farmers' prosperity or depression is very readily transmitted to every other line of business. They reported, however, that in the larger cities, everything seems to point to a good year for the building trades.

MAKING IMPORTANT ADDITION TO PLANT.

The Pacific Porcelain Ware Company, has added two new bee-hive kilns to its plant at San Pablo, Calif., which will be in operation immediately after the first of the New Year.

BEG YOUR PARDON.

An injustice was done the Engleby & Brother Co., jobbers of plumbing, heating and tinners' supplies, of Roanoke, Virginia, through a statement in the 24th issue of "Domestic Engineering" to the effect that their business was purchased by Frank E. Fielder & Co. The four members of the latter company are former employes of the Engleby & Brother Co., who have opened a plumbing shop on their own initiative and are in no way connected with the Engleby & Brother Co. at the present time. "Domestic Engineering" regrets that it was misinformed and hastens to correct the error.

THOMAS E. DWYER CALLED BY DEATH.

Thomas E. Dwyer, of Wakefield, Mass., owner and manager of the Lead Lined Iron Pipe Co., of that city, died at St. John's Hospital, Lowell, Mass., December 26th, in his 56th year. He was stricken while in Lowell last September while campaigning with United States Senator David

I. Walsh, a lifelong friend. Senator Walsh was at his bedside when the end came. Mr. Dwyer was a native of Medford, Mass., and a brother of the late Mayor Michael F. Dwyer, of Medford, who conducted a plumbing establishment in that city for half a century. He was prominent in democratic politics in Massachusetts, was a former chairman and for many years treasurer of the Democratic State committee, served for six years on the Metropolitan Water and Sewer Commission and had held places on many commissions. He invented and patented the lead lined iron pipe.

UNEMPLOYMENT REPORT.

Secretary Hoover, Chairman of the President's Conference on Unemployment, has issued from the Department of Commerce, his report on the work accomplished and the results obtained since the conference made its recommendations and adjourned two months ago, when it was estimated some 3,500,000 persons were without employment. Concrete results already apparent, according to the report, are:

1. Public opinion, for the first time in American history, has been focused on unemployment.
2. Municipal committees are organized for the first time on a nation-wide scale to relieve it.
3. A national clearing house is ready to assist the municipalities, with district representatives in the field.
4. Industry is assuming a share of its responsibility to the unemployed.
5. Municipal bond sales for public works have broken all previous records.
6. Congress has inaugurated important public works.
7. A large appropriation for the United States Employment Service is before Congress.
8. A variety of other measures have been introduced in Congress to carry out the recommendations of the Conference, such as Senator Kenyon's bill for long range planning of public works.
9. Impetus is being given public education as to the nature of the problem of unemployment.
10. A scientific basis for future research is now being laid.
11. The construction industries are being organized nationally and locally under public direction, as, for example, in St. Louis.
12. In other notoriously seasonal and intermittent industries, such as the soft coal industry, stabilization studies are being planned.
13. A thorough investigation of methods for controlling the business cycle is in progress.

Continuing, the report states that a national clearing house has been established by the President's Conference on Unemployment and placed under the direction of Col. Arthur Woods, former police commissioner of New York City, and former assistant to the Secretary of War in charge of efforts to help re-establish service men in civil life, and has greatly stimulated local activities.

Two hundred and nine out of the 327 cities in the United States whose population is 20,000 or more have now organized mayor's emergency committees in accordance with the recommendations of the Conference or have signified their ability to carry out the Conference recommendations with machinery already in existence. Co-ordination of municipal agencies to meet the unemployment crisis, expected to reach maximum intensity in January or February, 1922, is virtually complete.

"Clean-up" campaigns in various industries, as recommended by the conference, have made rapid progress. The enlargement or renovation of plants and improvement in equipment are being ordered as a direct contribution to meet the emergency. There has been a general advance of industrial operations by employers, directly attributable to the work of the Conference.

"Mr. Hoover believes that one million and a half and perhaps as many as 2,000,000 men and women are employed today who would be unemployed if it were not for the work of the Conference," says E. E. Hunt, Secretary of the Conference. "There has been no change in the industrial situation sufficiently large to explain this. It is due to a successful appeal to local responsibility and the sense of service. This pick-up may be temporary, but it is a hopeful sign."

NEW CONSTRUCTION WORK.

The following are among the most important contracts recently awarded, as reported in "The American Contractor":

$150,000 residence and stores, Chicago, Ill.; David Schetnitz.

$125,000 factory, Chicago, Ill.; Schlake Dye Works.

$112,000 school, Maybrook, N. Y.; Board of Education.

$100,000 residence, Chicago, Ill.; Joseph T. Everson.

$100,000 apartment building, Chicago, Ill.; S. N. Hallberg.

$100,000 convent, Philadelphia, Pa.; Parish of Immaculate Conception.

$100,000 school, Canton, Ohio; Board of Education.

$100,000 residence and garage, Baltimore, Md.; Moses Hecht.

$500,000 building, Philadelphia, Pa.; Board of Home Missions & Church Ext.

$300,000 office building, Philadelphia, Pa.; Heyman & Bro.

$300,000 plant, Lorain, Ohio; Lorain County Electric Company.

$300,000 building, Minneapolis, Minn.; Board of Regents, U. of Minn.

$180,000 residence, Jeddo, Pa.; Jeddo Highland Coal Co.

$100,000 residence, Progress, Pa.; Geo. Hench.

$100,000 home, Baltimore, Md.; University Hospital.

$1,250,000 hotel, Washington, D. C.; Kenwood Corporation.

$1,030,000 office building, Harrisburg, Pa.; Commonwealth of Pa.

$1,000,000 school, Wyandotte, Mich.; Board of Education.

$700,000 hotel, Duncan, Okla.; The Modern Hotel Company.

$350,000 hall, Chicago, Ill.; Garfield Park Aerie No. 1113.

$341,800 school, Richmond, Va.; Richmond School Board.

$273,000 school, Detroit, Mich.; Board of Education.

$250,000 church memorial, Washington, D. C.; National Baptist Memorial Church.

$200,000 armory, Danville, Ill.; State of Illinois.

$125,000 factory building, Annville, Pa.; The Grieb Shoe Mfg. Co.

$100,000 factory, Grand Rapids, Mich.; Shaw Furniture Co.

$1,300,000 school, Saginaw, Michigan; Board of Education

$1,000,000 temple, Kansas City, Missouri; Masonic Bldg. Association.

$750,000 school and boiler house, Cleveland, Ohio; Board of Education.

$652,097 school, Pittsburgh, Pa.; Board of Education.

$600,000 school, St. Paul, Minnesota; City of St. Paul.

$400,000 school, Chicago, Ill.; Board of Education.

$250,000 school, Onondaga Valley, N. Y.; Board of Education.

$150,000 store and office building, Cleveland, Ohio; The Twenty-Five Hundred-Euclid Building Co.

$228,000 school, New Philadelphia, Ohio; Board of Education.

$200,000 dairy, Baltimore, Md.; Western Md. Dairy.

$200,000 school, Camden, N. J.; Board of Education.

$150,000 stores and apartments, Chicago, Ill.; Weller & Rubenstein.

$150,000 houses, Philadelphia, Pa.; Owner's name withheld.

$108,284 school, Detroit, Mich.; Board of Education.

$100,000 building, Milwaukee, Wis.; Gugen Lithographic Co.

$100,000 synagogue, Baltimore, Md.; Haar Zion Congregation.

$100,000 school, Claypool, Ind.; Elmer J. Kinsey.

$100,000 school, Bluffton, Ind.; Alex Hunt.
$338,000 sewer, Clarion, Iowa; City of Clarion.
$200,000 plant, Clearing, Ill.; Railways Ice Company.
$200,000 plant, Cumberland, Md.; Empire State Ice Company.
$100,000 hall, McPherson, Kansas; McPherson College.
$100,000 garage, Stalls and offices, Chicago, Ill.; Borden Farm Products Co.

LIQUIDATION OR PROFIT.

I read recently a public statement that business enterprises were being urged now to think more of profit than liquidation. Naturally, liquidation places business in a difficult situation, particularly when the liquidation goes to the point of wiping out profits or eating up a part of the original capital, writes J. H. Tregoe, secretary-treasurer of the National Association of Credit Men. I am sure, however, that when considering our lack of foresight in producing commodities beyond the capital powers of the world to finance them there should be no stoppage to liquidation until we have reached the very bottom and are in a position to build up once again strongly and safely. We cannot over-emphasize the need of correct prices as an accelerator of business, and if correct prices call for further liquidation, then we must submit to it and take our medicine until the public is satisfied that prices represent proper values and it is right for them to buy. Surplus stocks have been very much worked down throughout the country in all but some special lines as machine tools and commodities that were heavily overproduced during the war period. The prices of commodities have been following a declining movement, but liquidation of overhead is the chief objective and until we have brought overhead in proper proportion to prices and profits, the basis of remuneration will be narrow, and we can hardly dwell strongly on profit-making.

The business enterprise is entitled to reasonable profit. Without it business cannot sustain itself or attract capital. Having worked itself, however, into such unsatisfactory conditions by over-production, there should be no hesitation to lop off until prices seem right and in this matter, of course, the buying public must be reasonable and not expect too much. There is no reason to believe that prices in the immediate future or for many years to come will prevail at pre-war prices, that even in basic commodities or in agricultural products we shall enjoy pre-war prices. A fair figure somewhere between the normal of 1913 and the high peak of the Spring of 1920 must be reached, and we judge this is somewhere at about the 50 per cent mark.

Profit-making must be an objective of the business, but business-making must be its chief objective. Therefore, in summing up our ideas on this subject, we say emphatically, that stimulating business must be our first enterprise, and if, to do this, further liquidation is necessary, we must submit to it and the way to overcome the disadvantages of its operation is by reasonable profit-making when conditions are right once more. If the country had but heeded our appeal of four years ago, the setting aside of a reserve would have carried us through this period without strain, but so long as there was any faltering in the way of cutting commodities to the very bone, so long was it necessary to pursue the liquidation process to restore confidence and accelerate business.

PERSONAL MENTION.

H. L. Dussell, formerly with A. Dussell & Sons, of Columbus, Nebr., has been appointed manager of the plumbing and heating supply department of the Momsen-Dunnegan-Ryan Co., of El Paso, Texas.

D. A. Burt, of the LaBelle Iron Works, Steubenville, Ohio, has been appointed a member of the Iron and Steel Committee recently brought into being by Secretary of Commerce Hoover, to co-operate with the Department of Commerce, in reorganization of government departments for the betterment of industry as a whole.

TRADE LITERATURE

Percoplate Boiler Folder.

Alexander, Morrison & Co., Inc., Newark, N. J., have just issued a folder describing and illustrating the company's "percoplate" boiler for use where steam is desired for heating. The operation of the boiler is similar to that of a coffee percolator and generates steam quickly after firing. The inside of the folder contains a complete description and a detailed illustration of the boiler.

Wall Catalog.

The Central Brass Mfg. Co., Cleveland, Ohio, has just issued a wall catalog, 27½ inches high and 14 inches wide, with sixty illustrations printed in black and white on a black background. The top and bottom are securely bound with a metal binding, with a wall hanger fastened at the top. At the bottom there is a handy reference table of styles and finishes of the products.

Twenty Years Ago in "Domestic Engineering"

Saturday, January 4, 1902.

Tube Company Formed.—The Algoma Tube Works, Limited, has been given a charter by the Canadian government, with an authorized capital of $30,000,000. It is expected that the new plant will be located at Sault Ste. Marie, and that it will become the largest industrial establishment in Canada.

Mr. Rundle Retires.—J. P. Rundle, of the Rundle-Spence Manufacturing Company, Milwaukee, retired from the firm on January first, selling his interest to William Spence, who will continue the business.

Fleck Brothers Re-organize.—The partnership existing under the firm name of Fleck Bros., of Philadelphia, was, on January 2, dissolved, to be succeeded by the firm of Fleck Bros. Co., incorporated. There is to be no change in the management of the business.

To Double Capacity.—The plant of the Universal Supply Co., at New Castle, Pa., is to double its capacity at once. The company began operations only a few months ago with four kilns and 125 men. It will double the number of kilns, and also the number of men.

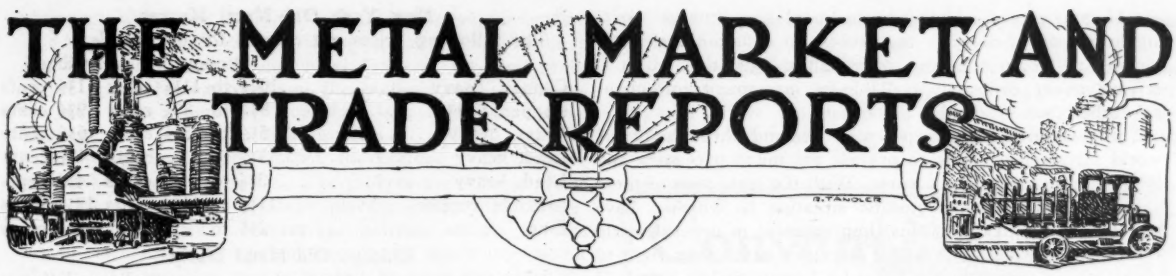
A Good Field for Americans.—The Hawaiian Supply Co., of Honolulu, reports great development in Hawaii, and there seems to be a good opening there for American goods and American plumbers.

Getting Foreign Trade.—The Buffalo Forge Company has received the contract for furnishing the heating and ventilating apparatus for the Municipal School of Technology in Manchester, England.

An Important Announcement.—The American Radiator Co. has sent out an announcement telling of the extensive method to be used in advertising its steam and hot water heat to the world.

The Mueller Banquet.—The H. Mueller Manufacturing Co., of Decatur, Ill., tendered its employees and a few invited guests a banquet on the evening of the last Monday in December. While this is an annual custom with the company, the occasion this year was the completion of the new brass foundry, a model building of its kind, 155 ft. in length by 45 ft. in width, giving space for twenty furnaces ranged about a central stack.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

For the year just ended the best that can be said in connection with the steel industry is that it might have been much worse. It has been a period of slow digestion and the process has been costly but necessary and has left the market in at least a healthy condition and the way opened for renewed activity. Toward the end of the year there was a tendency not only to hold off so far as possible but to delay deliveries due in December; but under the circumstances the month is expected to have made a better showing than had been anticipated in the gross volume of tonnage moved, though, in the competition for business, prices have suffered severely. The prospects, however, are not for an increase but rather for a still further curtailment of values. To accomplish this end and to place the mills on a paying basis the factors will be lower wages and transportation and increased demand. There is confidence that these will be adjusted in the early part of the new year.

The railroads have already placed considerable business. During December upwards of 100,000 tons of rails were contracted for, and there are several inquiries in the market for delivery in 1922. There are also prospects for a large volume of tonnage of both track equipment and rolling stock, for the present deferred. The roads, for the first time in years, are beginning to show an active interest in bridge construction.

At the moment mill operations are down to low ebb. An average of about 25 per cent is estimated for the independents, while the leading interest is credited with something less than 35 per cent. This slow movement, however, is but natural and by no means disconcerting.

The most active feature among the lighter products is that of tin plate, which of late has been quite pronounced. Consumers have accepted the current price of $4.75 per base box as satisfactory, and have covered their early requirements for 1922. The tin plate mills are operating at an average of 75 per cent and some of the corporation plants are running full.

Demand for plates is light and scattered. The tank building operations in Texas have involved about 75,000 tons, but competition has been very keen and prices have been generally shaded.

December was an exceptionally good month for pig iron, much better than even the more optimistic furnaces had reckoned upon. It is estimated that eastern Pennsylvania alone booked a gross of 75,000 tons and in all probably 150,000 tons have been placed east of the Alleghanies. The last week, however, has been quiet, as was to be expected, because the buying, much of which was of large lots by manufacturing consumers, came with a rush and spent itself within the first three weeks. It was a gratifying fact, however, that the policy of hand-to-mouth buying has been broken by the larger consuming interests and deliveries covering the first quarter of 1922 will be extensive. At the moment, however, business has practically closed but it is expected that the turn of the year will develop more new business which has been deferred. About 15,000 tons were booked by Buffalo furnaces last week, which added to the earlier business of the month, will swell the total to approximately 70,000 tons. But this comparatively heavy business has been done at more or less sacrifice as to price. Of late there has been more tendency on the part of the producers to hold out for their terms, but only after the bulk of the business had been booked.

The general tendency of the iron and steel market at the end of the year was definitely toward firmness and this is reflected not only in the lighter finished forms but in plates, shapes and in semi-finished steel. In the merchant bar market the 1.50 cents base has become exceedingly firm and has withstood every effort by large consumers to break through. Sheets at 3 cents and galvanized at 4 cents have stiffened materially and no sheet producers appear willing to consider these prices for the new year. Blue annealed sheets are slightly irregular in small transactions ranging from 2.15 cents to 2.25 cents under reports of current transactions.

Nail and wire trading is practically at a standstill and no positive test of the new base prices is expected before the middle of January, when buying for the succeeding sixty days is expected to appear. The hopeful sign of the nail trade, however, is that stocks are not large. The president of the Bethlehem Steel Corporation sums up the situation of the steel business today as follows: "In order intelligently to consider the future of the steel business we must first review its experience in the immediate past. Just after the signing of the armistice on November 11, 1918, and with the cancellations of the government requisitions for supplies, there came an end to a period of unprecedented production in the steel industry. A season of recession followed, which, however, was of but comparatively short duration. Beginning about the middle of 1919 and continuing up to the latter part of 1920 there was a large demand upon the steel business, production absorbing practically the capacity of the industry. Toward the end of 1920 began the rapid contraction in the volume of business. Indeed, the demand for steel continued to decline until it reached a point which may be regarded as the irreducible minimum. Buying was reduced to quantities merely sufficient to meet the immediate daily necessities. There was no expansion for the future. This condition still obtains, although there has been a slight increase in demand extending over the past six months. Buyers' stocks are exhausted and the increase in demand is due to requirements for immediate consumption.

The steel industry has consistently led in an effort to reestablish normal conditions. Steel prices and steel plant labor have been fully liquidated in comparison with pre-war conditions. The price of steel in itself is in no way responsible for holding the industry at a low point of production.

The restoration of activity, at least so far as domestic conditions are concerned, is prevented by the failure so far to readjust three vital elements in the situation. I refer to the high costs of (1) transportation, (2) fuel and (3) building operations, all occasioned very largely by the existing high cost of labor entering these lines of industry. These factors must be corrected before confident buying can be resumed. While these conditions remain, money can not be invested in the development of industry with any expectation of a rea-

sonably safe return. Adding to the anomalous situation existing by reason of delay in the process of deflation there still remains to be amended the unsound tax legislation which is driving money, ordinarily available for investment, into channels other than productive enterprise.

There is an enormous potential demand throughout the world for steel products to provide for much necessary and long-delayed construction work. With the correction of these specific factors in our domestic situation to which I have referred, and with the gradual improvement in general world conditions which is now taking place, we have every right to look forward optimistically toward a long period of sustained prosperity. The elements of the situation to which I have referred as not being in harmony with conditions necessary for a sound and healthy revival will, I believe, be gradually corrected. I should expect to see the result reflected in the spring of 1922; not in an exaggerated form—it would be a mistake if that should take place—but at least in a turn for the better, followed by a gradual, wholesome, substantial return to a sound prosperity.

Prices for pig iron are quoted as follows:

No. 2 Pittsburgh	$21.46@$21.96
No. 2X Philadelphia	21.36@ 21.76
No. 2 Southern, Birmingham	17.50@ 18.00
No. 2 Chicago	19.50@ 20.00
Basic Valley, furnace	18.25@ 18.75
Bessemer, Pittsburgh	21.96@ 22.46

Copper.

The copper market is uniformly quiet with little inquiry for small lots. Producers are waiting for demand and holding firm at the ranges previously prevailing, but there is not enough interest shown at the end of the year to test the strength of the quotations. Spot copper was quoted at 13⅜ cents with January and February up to as high as 14 cents. The announcement that the Anaconda company would resume mining in full after January 16 excited some little interest. The men have accepted a wage cut to enable the company to double its present operations. Other producers are considering possibilities but claim as yet to be undecided. As it will take several months to produce copper ready for market the effect on the refined metal of the resumption is not expected to be felt on current quotations. The latent strength lies in a much stronger statistical position.

Tin.

In the New York market for tin there was comparatively little interest, but the price was up about 1 cent on London cables and spot Straits was quoted at 33¼ cents, and futures at the same price. Standard tin was quoted at 33 cents for spot and January, against 33.50 cents asked for the last named option. Arrivals during December were 3,980 tons at Atlantic and 110 tons at Pacific ports. Tin afloat is estimated at 5,350 tons.

Lead.

The price of lead holds steady despite a temporary lack of buying interest. The leading interest continues its quotation of 4.70 cents, and the outside market ranges between 4.70 cents and 4.80 cents, as to grade. For East St. Louis the market is quoted at 4.40 cents. The Metal Exchange quotes New York delivery at 4.70 cents for spot and January, against 4.75 cents asked. For basis East St. Louis the exchange quotes the same positions at 4.375 cents, against 4.425 cents asked.

Zinc.

There is little interest shown in zinc. The market continues quiet and is beginning to weaken slightly, with sellers at East St. Louis at 3.85 cents.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum Powder .....60 to 65 cents per lb.
Aluminum (in 50-ton lots) 99% and purer..25 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying	Selling
Copper, heavy	10⅞ to 11⅛ cents	11⅞ cents
Copper, light	8⅝ to 8⅞ cents	9⅞ cents
Brass, heavy	5¼ to 5½ cents	6¼ cents
Lead, heavy	3⅞ to 4 cents	4¼ cents
Lead, heavy	3⅞ to 4⅛ cents	4½ cents
Crucible copper	11¼ to 11½ cents	12¾ cents
Zinc	2½ to 2½ cents	3 cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying	Selling
Heavy yellow brass	5 to 5¼ cents	6¼ cents
Brass, light	4 to 4½ cents	5½ cents
Red brass	8 to 8½ cents	9 cents
Copper, heavy	9½ to 10 cents	10½ cents
Copper, light	7 to 7½ cents	8½ cents
Lead, heavy	3½ to 3¾ cents	4 cents
Zinc,	2½ to 2¾ cents	3¾ cents

In the New York Supply Market.

New York, N. Y., December 31st.—The New York plumbing supply market is turning the corner into the new year with slightly more activity than is usually the case. In spite of a tendency in certain quarters to mark time pending possible price shadings on January 1st, there is a noticeably brisk demand in some lines.

The lines in which the activity is most marked are probably those standing at such low levels that any further deflation is unlikely. If there is any early movement in brass manufactured goods and soil pipe, for instance, it is generally conceded that it will be in an upward direction. A local supply house reports a recent conversation with a manufacturer of soil pipe, in which the latter stated that after freight, sales commissions, cash discounts, etc., had been deducted, the manufacturer received only $28 per ton net for 4-inch extra heavy soil pipe at the present prices. In the other sizes, current prices afford a slight shading of profit but even there it is essentially a buyer's market.

That this is being recognized is indicated by a rising demand on local jobbers from far west. Pacific Coast buyers find the conjunction of low prices plus low water freights very attractive and are placing large orders to be routed via Panama.

In the wrought iron and steel pipe section of the market, with prices at a relatively higher level, the demand is not so noticeable, although steel pipe is showing some activity. There is a general expectation that this will be increased after the turn of the year when present anticipations of further price declines are settled one way or the other. Local jobbers do not expect any changes in iron or steel piping, but some of them report a tendency to postpone the placing of orders until this week is over.

A significant development in brass manufactured goods is noted. While no actual price advances have been announced, one manufacturer has definitely warned his customers to buy now, as a 10 per cent advance will mark the new year. Some dealers in these lines are inclined to regard this as mere filibustering and prefer to "wait and see." It is generally recognized, however, that brass goods are due for an advance as soon as the market will stand for it, as prices are away below comparative levels in other supply lines.

The reductions in enameled goods and certain lines of bathroom equipment noted in a previous report have not been so widely followed as was anticipated. Several leading supply houses report that they have not made any concessions in this direction and do not intend to do so; at any rate, not at present. On the other hand, it is noted that prices in several lines of bathroom equipment are

above pre-war levels and would stand for cutting somewhat. The reduction of 10 per cent (in some lines it was as much as 15 per cent) made by individual firms recently was probably a reasonable figure, but as the example of those houses has not been generally followed it is possible that some of them may reconsider their position.

In the heating supply market, the position remains more or less as it was last week. The jobbers are through their busy season but they continue placing orders with manufacturers for stock. The recent activity shown in this market seems to indicate that there is not much expectation of any price shadings at the turn of the year, although this, of course, is always possible.

Local supply houses in all lines continue optimistic in spite of the uncertainties under which the trade is laboring. There is an almost universal confidence that the turn of the year or shortly afterwards will see a revival in demand in all lines, and that this will become particularly active with the coming of the spring, when the building trades get fully going again.

"Our plants reopen on January 3rd," said Harry Mason, of the Central Foundry Company, "and we hope it will coincide with a general improvement in demand. The feature with us just now is the excellent business we are receiving from buyers on the Pacific, who find an attractive combination in the prevailing low price levels of soil pipe and the low freights by the Panama routes. Local business is not very active but we expect it will improve after the turn of the year and still more so when spring comes."

"We are sending a representative out to the Pacific Coast," said the local sales manager of the A. M. Byers Co. "Hitherto we have handled our business there through local houses, but the increasing demand for wrought iron pipe has made us think it will be worth while to have our own representative right on the spot. We note an all-round improvement in demand in the local market, and if labor can be induced to take a more reasonable attitude, we imagine there will be plenty of business in the spring."

"The trouble just now is that the demand is mostly for cheap lines," said a representative of Peck Bros. & Co. "So far as business is concerned, the supply houses are more or less dependent on the plumber, and the latter in many cases doesn't seem to have awakened to the fact that the days are gone by when he can look to have his business handed to him on a silver plate. Another thing he's got to do is to get rid of the idea that any old basement premises are good enough for a plumbing business. Plumbing is as honorable a trade as there is anywhere and the men who follow it have got to learn to hold their heads up with the best."

"We are just turning the corner of the quiet season," said Frank Meyer, of the Meyer-Sniffen Company. "With the inventory finished we have the decks cleared for all the business that comes along our way. There isn't anything very much now, but we are full of optimism for January and particularly for the spring. We haven't reduced our prices lately and any move in that direction, it seems to me, must be preceded by a more reasonable attitude on the part of labor. The labor attitude is the crux of the whole problem, especially as wages constitute so large an element in all plumbing supply lines."

In the Chicago Supply Market.

Chicago, January 4.—Reductions in prices in several lines were announced by a number of the leading supply houses in the past week. Radiation has been reduced about 10 per cent, soil pipe prices have dropped two points and cast-iron fittings are 5 per cent lower.

Manufacturers have attempted in these last reductions to reach prices that can be depended to remain fairly stable for some time. This should help to eliminate the uncertainty that has characterized the markets for the past several months and, it is hoped, encourage jobbers to stock up and stimulate buying.

The apparent deadlock in the building trades over the Landis awards has been felt by the supply dealers; for, although prices are apparently close to the bottom, the feeling of uncertainty that prevails has resulted in most jobbers placing orders only for immediate needs.

January 17 and 18, 1922.—The 28th annual convention of the Wisconsin Master Plumbers' Association, to be held in the Gold Room, Hotel Wisconsin, Milwaukee, Wis.

January 24, 25 and 26, 1922.—The twenty-eighth annual meeting of the American Society of Heating and Ventilating Engineers, to be held in the Pennsylvania Hotel, New York City.

January 24, 25 and 26, 1922.—The annual convention of the Illinois Master Plumbers' Association, at Champaign, Ill. The sessions will be held at the Masonic Temple.

February 6, 7 and 8, 1922.—The annual convention of the Minnesota Retail Plumbers' Association. The city, where the convention is to be held, has not yet been announced.

February 14, 15 and 16, 1921.—The annual convention of the Ohio State Association of Master Plumbers, at Canton, Ohio.

February 20, 21 and 22, 1922.—The annual convention of Nebraska Retail Plumbers' Association, at Omaha, Neb.

March 7, 8 and 9, 1922.—The annual convention of the State Association of Master Plumbers in North Dakota, at Grand Forks.

March 13, 14 and 15, 1922.—The annual convention of the Indiana Society of Sanitary Engineers to be held at Indianapolis.

March 27 and 28, 1922.—The annual convention of the Kansas Master Plumbers' Association, at Salina, Kansas.

April 10, 11 and 12, 1922.—The annual convention of the Oklahoma State Association of Master Plumbers, at Shawnee, Okla.

April 17 and 18, 1922.—The annual convention of the Tennessee State Association of Sanitary Engineers, at Memphis, Tenn.

April 18, 19 and 20, 1921.—The next annual convention of Iowa Master Plumbers' Association, in Mason City, Iowa.

May 2 and 3, 1922.—The annual convention of Colorado Society of Sanitary and Heating Engineers. It has not yet been decided where the convention will be held.

May 12 and 13, 1922.—The annual convention of the Association of Master Plumbers of the State of Washington, at Tacoma, Wash.

May 15, 16 and 17, 1922.—The annual convention of the Kentucky State Association of Master Plumbers in Ashland, Ky.

May 22, 23 and 24, 1922.—The annual convention of the State Association of Master Plumbers of California, at Sacramento, Calif.

June 6, 7 and 8, 1922.—The fortieth annual convention of the National Association of Master Plumbers, in Detroit.

February 20, 1922.—Concert and Reception of the Master Plumbers' Association of Greater New York, to be held at the Hotel Pennsylvania in New York City.

The Government Printing Office consumed 50,00,000 pounds of paper during fiscal year ended June 30, 1921. The total expenditures for the year were $11,000,000.

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

The Building Situation in Chicago.

Building conditions in this city have received a temporary set-back due to a partial tie-up in the building trades as a protest against the attempts of the Citizens Committee to enforce the Landis Award to establish what amounts to an open shop in all trades that have declined to work under the provisions of that award.

Contractors prefer to be non-committal on the subject, but the general opinion prevails that this disagreement will have to be adjusted before the promised 1922 building boom can get under way.

Records in the office of the Building Commissioner show that requests for building permits for the past week have fallen considerably under those issued the week previous. This is accounted for in part, of course, by the interference of the holidays with the regular routine. Seventy-eight permits were issued, most of them for small construction projects, the largest one not exceeding $18,000.

Despite the uncertainty of the situation, however, the trade in general is still optimistic in its attitude toward the new year, the feeling being that the labor situation must be settled and it might as well be disposed of now.

Chicago.

M. J. Corboy Co., 178 West Randolph Street, has secured the plumbing contract on a large store and restaurant building being built for David Schetnitz at 63rd Street and Ellis Avenue. The building is of brick and terra cotta, and the plumbing work will amount to about $9,000.

C. A. Dreier, 707 West 47th Street, has been awarded the contract to install the plumbing in a three-family apartment building and garage now in course of construction at 1226-1228 Madison Park. The building is to cost $45,000. The contracts on a five-apartment, two-story building with garages and stores, to be located on the corner of 79th Street and South Shore Drive have also been awarded to C. A. Dreier.

Sam Kersten, 554 West Jackson Boulevard, will install both plumbing and heating in a new synagogue that is being erected at 1500-1508 Clifton Park Avenue. The building will consist of one story and a balcony and will cost $25,000.

Architect Thos. R. Bishop, 35 South Dearborn Street, is drawing plans for a $3,000,000, forty-eight family apartment building to be constructed on Washington Boulevard, Oak Park, for Harry J. Kusel, 1516 South Wabash Avenue. The building is to be of brick, three stories and a basement.

Plans are being completed for a $2,000,000 store and apartment building, to be located on Estes and Glenwood Avenues. The structure is to be of brick, reinforced concrete and stone. McNally and Quinn, 123 W. Madison Street, are the architects and engineers.

Ruben Levine, 133 West Washington Street, is taking bids on all separate contracts for work on a thirty-family apartment building to be built on Garfield Boulevard, near Oakley Avenue. The plans were made by Whitney & Williams, 122 South Michigan Avenue.

Ohio

Cleveland.

Cleveland plumbing and heating interests enter upon the new year with optimistic frame of mind. Opinion in these branches of the building industry is that building operations have about reached their lowest ebb, at least as far as big construction is concerned, and that the trend on the upgrade will start early in 1922. All the larger heating and piping and plumbing interests are busy on the big commercial, office building and hotel projects that have been enumerated previously in this column.

While new work of this character still is uncertain, the gratifying feature as relates to the smaller construction, residence work and the like, stands out as a satisfaction to the smaller contractors. It is confidently expected that building figures as a whole will total equal to those of 1920, or nearly so, and that housing construction will continue its gain of fifty per cent over 1920. Thus with 1921 showing favorably against apparently tremendous odds, principally that of backward financing, the future may be considered more encouraging even than was the year just past.

Excessive taxation is the keynote to the building situation here as elsewhere throughout the country. First and second mortgages are taxed to such an extent as to prohibit the use of money for this purpose, and where money is forthcoming the cost to the borrower is such as to discourage building. Yet there is plenty of money available for the better class of residence and other construction, and this business is expected to be among the first to be developed this year, largely as a result of the American Building Exposition, scheduled to open in Public Hall, February 22. The show committee of the Heating and Piping Contractors Cleveland Association, headed by Ed Maurer, of the Maurer Bros. Company, is expected to have its plan completed within a week or two, and an idea of what this branch of the construction industry will exhibit will be had at this time. In this branch, as with all others, the show is looked upon as being the biggest single piece of publicity for the building business the industry has ever had, and the long-looked-for building boom is expected to be a direct result of it.

The labor situation yet remains to be adjusted before the spring drive starts, and negotiations between building trades employers and the building trades operatives continue. No agreement on wages or working conditions yet has been reached.

Election of the Building Trades Employers Association officers has resulted in the following: President, E. F. Hauserman, the E. F. Hauserman Company; vice-president, F. C. Werk, of his own firm; treasurer, J. S. Peck, of his own firm. Executive committee includes the officers and F. T. Crane, of his own firm; E. F. Gibbons, of his own firm; George Thesmacher, of the Reister and Thesmacher Co., and A. E. Koblitz, of the Koblitz Heating and Plumbing Co.

Co-operating with Walter Klie, of the Smith & Oby Co., president of the National Association of Building Trades Em-

ployers, the foregoing members are preparing for the convention of the national body here in January. It is more than probable that the labor situation will be dealt with largely at that gathering. It is more than likely there will be a comprehensive program that will convince the general public that abuses of restrictive measures have been done away with.

Instructions to delegates and other information pertaining to the convention of the Ohio State Association of Master Plumbers are being distributed by President H. W. Eckhardt and Secretary Eb Ellen. The convention is the 34th annual conclave of the state body, and will be held at Canton February 14-16. The work is under the direction of a special committee, comprising E. C. Andersen, Toledo; C. E. Boughton, Toledo, and L. L. Daniels, Toledo. The different matters that will come up for discussion will be handled by capable committees. These include:

Apprenticeship Committee—Chairman, Otto J. Wheeler, Columbus; George Schneider, Dayton; Wm. H. Grabowsky, Canton.

Essay Committee—Chairman, Frank S. Prior, Akron; Wm. C. Tillett, Cincinnati; Chas. E. Arting, Mansfield.

Sanitary Committee—Chairman, Wm. Fischer, Columbus; Wm. A. Schneider, Columbus; W. H. Spohn, Columbus.

Publication Committee—Chairman, Walter F. Kirn, Akron; A. C. Eynon, Canton; Harry S. Smith, Warren.

Plans for the year's activities of the Heating and Piping Contractors Cleveland Association are ready to go ahead following the appointment of officers and committees for that body. The different groups and those that comprise them are:

President, F. M. Daugherty (The Grinnell Co.); vice-president, M. L. Crowell (The Crowell-Smith Co.); secretary, Chas. H. Mallett (The Schneider Plumbing Co.); treasurer, Arthur E. Welker (Price & Welker); sergeant-at-arms, W. F. Hann (of his own firm).

Executive Committee—Includes the officers and W. B. Van Sickle (of his own firm); Edward Maurer (The Maurer Bros. Co.); Walter Klie (The Smith & Oby Co.); W. C. Clark (The Becker-Seidel Co.); M. Jones (of his own firm).

Conference Committee—W. B. Van Sickle, R. H. Morgan (The Chappell-Warren Co.); Geo. Spohn (The Spohn Heating & Ventilating Co.); A. E. Welker, A. E. Koblitz (The Koblitz Plumbing & Heating Co.); Chas. Sobotta (The Sobotta Heating Co.); Walter Klie.

Trade Relations Committee—Walter Klie, M. L. Crowell, R. H. Morgan.

Trade Education Committee—M. L. Crowell, Chas. Sobotta, W. Nobis (Weiss Heating & Plumbing Co.).

Entertainment Committee—R. H. Morgan, W. C. Clark, A. W. Growe (Warden & Leese).

Audit Committee—Chas H. Mallett and A. E. Welker.

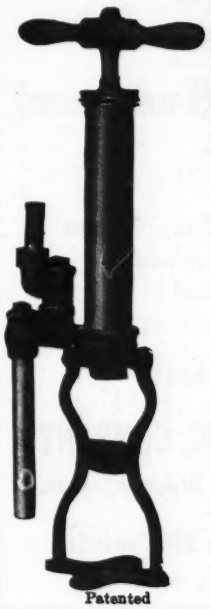
Delegates to Building Trades Employers Association—Geo. Spohn, W. B. Van Sickle, F. M. Daugherty, Walter Klie, Ed. F. Bohm, A. E. Koblitz.

Membership Committee—Edward Maurer, W. B. Van Sickle, R. H. Rowe (of his own firm).

Committee on Building Exposition—Edward Maurer, M. L. Crowell, M. Jones, W. C. Clark, Al. Becker (The Becker Heating & Ventilating Co.).

Latest of the home building campaigns to be started here, and one that is certain to meet with approval of the smaller plumbing and heating contractors, is that by the Jones Company, recently organized by Irving W. Jones, as president, and B. A. Jones, treasurer. Both have had long experience in the building business here. The plan of the new company, in a word, is to handle house building projects complete, from the drawing of plans and selection of sites, to the placing of mortgages and other similar details. The work will be departmentized, with capable department heads. The claim is advanced that whatever transaction develops in real estate that the company handles, it is certain to result in at least one prospect for a new house. A saving of 12½

Three Pumps in One



THE PERKES Combination Air, Force and Test Pump is especially designed for testing soil pipe, proving gas pipe and cleaning water mains. Just the pump every plumber has been looking for.

Works with air or water. All valves outside. No stuffing boxes.

With the PERKES you are equipped to handle any job—why have three pumps?

Write For Particulars

CHARLES PERKES COMPANY
627 and 629 Arch Street
Philadelphia, Pa.

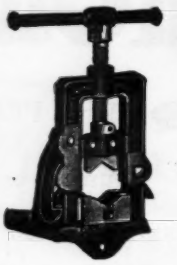
Trade Mark Pipe Fittings Trade Mark

Complete Line Manufacturers
of
Cast Iron Screwed Fittings
Standard and Ex. Heavy
Malleable Iron Fittings
Standard and Ex. Heavy
Flanged Fittings and Flanges
Standard and Ex. Heavy
Drainage Fittings, Blk. and Galv
Railroad and Nokoros
Patented Unions
Nipples
All Sizes—Standard and Ex. Heavy

Illinois Malleable Iron Co.
General Offices and Works
Chicago, Ill.
Canadian Plant
Guelph, Ont.

THE GENUINE ARMSTRONG

HINGED PIPE VISE



Has Been Imitated Many Times
But Never Improved
on the Original

Manufactured and Sold By

THE ARMSTRONG MFG. COMPANY

284 Knowlton St., Bridgeport, Conn.

New York Office: 248 Canal St.

EUROPEAN PLAN
600 Rooms 600 Baths
$2.50 up, Single $4.50 up, Double
Agents Sample Rooms $5.00 per day

HEADQUARTERS IN DETROIT FOR
Old Colony Club
Detroit Automobile Club
Motion Picture Exhibitor's Ass'n

Large Information Rack in Writing Room
CIRCULARS ON REQUEST

Table d'Hote $1.00-$1.50
Business Men's Luncheon 75c

HOTEL TULLER
A. McKENDRICK, Mgr.
DETROIT, MICH.

Cafe A La Carte Cafeteria Men's Grille

per cent to the building public adopting this plan likewise is claimed. The drive for next spring's business started at Christmas time by the Jones Company has developed a sizeable list of prospective builders, according to Mr. Jones.

Annual meetings of clubs affiliated with the Associated Plumbing Contractors of Cleveland have resulted as follows: Master Plumbers' Council: Trustees—Al Schnitzer, David Perlick, M. Rodner, Samuel Garber, Samuel Odess. The same club adds M. Bobier as a member. Progressive Club: Trustees—R. H. Spilberg, W. A. Schaefer, Samuel Apple, A. P. Keller, L. W. Webb.

Pennsylvania

Philadelphia Heating and Piping Contractors Plan Joint Advertising Campaign.

A city-wide organization of responsible and accredited heating and piping contractors for purposes of joint advertising and incidentally, service policies, is planned as the outgrowth of a meeting of the local chapter of the Heating and Piping Contractors' Association held in Philadelphia, Thursday evening, December 29th. The plan so far developed is about the most ambitious scheme for co-ordinated technical trade activity ever evolved in a city outside of New York, considering that it is not of the general scope of so-called building trades organizations, and purposes considerable work on behalf of a uniform contract, and a codification of heating specifications, in addition to the advertising project.

Details of the advertising scheme are already under discussion, and one tentative theory of operation, with a rough draft of what might be accomplished has been advanced by Arthur St. George Joyce, who has for some time conducted the joint advertising work of several Philadelphia hardware manufacturers.

What Mr. Joyce has outlined is based in its application on the conclusions of the meeting, of which M. G. Sellers, secretary of the organization, says:

"Our proposed joint advertising campaign is founded on the theory that you can take any business man today and everywhere he has to deal with those who are in some way or other connected with an organization. I know of no steam fitter who does not find in a present or prospective customer a man who is not so identified. That being the case, the members of our association must appreciate the value of establishing in the mind of such customers the fact of responsibility and service resources. That being the case, it is up to the organization to take advantage of the opportunities offered to tell the public how it can carry on the work of its members collectively with guaranteed responsibility and a standard quality of service.

"Some cities have not made a success in organizations of this kind. On analysis I find that this has been largely due to lack of funds. Half of the tradesmen, ordinarily, do not see the value of the proposition, either, so there is lots of room for education and discussion. But the advisability of a joint advertisement of service and responsibility is proven by the simple fact that in the case of the individual it makes for good financial returns. That is the theory on which I have propounded this plan: we are an association of individuals who can profit by uniting our resources.

"We have investigated the possibilities from many angles. Committees are to be appointed which will go into the needs of the proposed plan. Our contemplated move will not be in any sense for the sake of price guaranties, but for guaranties to the public of service and responsibility. Any advertisement of the kind we contemplate using would carry a clear declaration that price is not the subject or consideration of such publicity.

"If there is to be such a program in the steam-fitting trades by reason of associated effort, then this association is the logical leader, because we assemble to educate ourselves and improve our product and service. Another angle of the problem is the question of whether the licensing by the state, or sanctioning by municipal ordinance of a man's work as acceptable is wholly effective. It is mighty easy to get a license. The only trade licensed at present is the plumbing trade.

"The heating and electrical trades are naturally considered as coming within the scope of advisability in connection with licensing activities of the commonwealth. But what guaranty have you, even though either an electrician or a heating expert be a thorough mechanic, that he will be a responsible business man? He may have a thorough technical knowledge of construction features of his work and then on the other hand have a mighty poor idea of business.

"The mercantile phase of his work is farther advanced with the electrician than with the other trades. It is hard to say whether the heating contractor will become a merchant or remain essentially a contractor. The plumber has the better opportunity because there are more appliances which he can show to the public in a suitable window front and if he is aggressive enough, through developing his opportunities to sell repairs and supplies, sooner or later he gets into the merchant class. He finds, as the electrician finds, that the sale of a single item, such as an electric iron, brings other sales.

"All of that depends on a man's location, and it is up to him to locate where he can find the necessary number of passersby. Because the tendency of the trades represented by our association is going to be in the direction of merchandising, this is one point that we have to consider carefully in our plans."

But, Mr. Sellers points out, one thing the association will insist upon, and that is that a licensed engineer be not specified for every job a member undertakes. This would be unfair and superfluous, a needless adding of expense, in the opinion of association members. For their guidance, and the standardization of their service, it was proposed at the meeting that standard practice for Pennsylvania and Philadelphia in particular, with reference to heating and ventilating installations, shall be codified. A search is to be made of statutes and ordinances, and the present safety standard code governing boilers may be incorporated, so as to give a comprehensive guide to the trade. Where the supervision of a licensed engineer is obviously necessary, he can then be employed, as the demands of the job may dictate.

The uniform contract in preparation, according to the plan of the association, is going to contain no clause or room for a clause specifying "and only members of Local.... shall be employed in this work." In fact, Mr. Sellers declared that "the uniform contract for Philadelphia is going to be different from that in most other cities. There are certain local conditions particularly pertaining to labor that require local treatment. It is not like New York and Chicago, where labor dictates certain prices without reference to conditions."

The next meeting of the association will be on January 26th, when reports will be made on progress to date and permanent committees named.

The School Board of Pittsburgh, Pa., has awarded the last of the large school buildings to be erected under the three million dollar bond issue. The plumbing on the Langley high school was awarded to the Buerkle Plumbing Co., Pennsylvania Avenue, N. S., Pittsburgh, while the heating went to a New Castle plumbing and heating concern, the R. T. Withers Co.

Jones the Plumber wrote Bill

Dear Bill:

Successful Selling comes from careful planning. Knowing definitely what you wish to accomplish and how, assures biggest returns.

The Kenney Shower Sales Plan is based upon the experience of plumbers who are successful. Their methods are now gathered into a comprehensive plan that will bring success to you.

Send for your copy of the Sales Plan today.

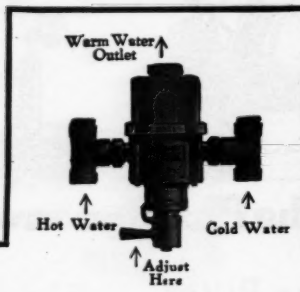
Yours,

J. J.

Write for Kenney Shower Sales Plans. They are in keeping with the Trade Extension idea. Over a thousand merchant plumbers are now making extra profits through the aid of these plans.

The Curtainless Shower Company
507 Fifth Avenue, New York

It Regulates The Bath



The Powers Thermostatic Water Controller

THE Powers Thermostatic Water Controller mixes hot and cold water and delivers at a uniform temperature.

It is a true thermostatic controller—not to be confused with mechanical mixers. It automatically shuts off the flow, if either hot or cold water supply fails, thus preventing scalding, or shock from cold water.

Applicable to showers singly or in gangs.

Ask for bulletin No. 124

THE POWERS REGULATOR CO
Specialists in Automatic Heat Control

953 Architects Bldg., New York.
2716 Greenview Ave., Chicago.
563 Boston Wharf Bldg., Boston.
The Canadian Power Regulator Co.,Ltd., Toronto, Ont.

(1710)

The Hayes Tank

MADE OF GENUINE RUPPELITE

HAYES-RUPPEL MANF'G CO
HAYES
GRAND RAPIDS MICHIGAN

This tank has met with the universal approval of master plumbers and jobbers throughout the country.

It is sturdily built to stand severe usage. Guaranteed sweat-proof. Will maintain its beautiful white surface permanently.

Why not plan on the HAYES Tank for your next job? The price is right.

Syphon Jet

Sold by leading jobbers

Hayes-Ruppel Mfg. Co.
Ottawa and Louis Streets
Grand Rapids, - Michigan

New York

New York Master Plumbers Appoint Committees for Annual Concert and Reception.

The Master Plumbers' Associations of the five boroughs of Greater New York have now appointed their committees to make arrangements for the Concert and Reception to take place in February.

The affair is to be held in the Grand Ball Room of the Hotel Pennsylvania on Monday evening, February 20th, tickets, admitting gentleman and lady, being priced at $3. Although celebrations by individual Master Plumbers' Associations are plentiful enough, this is the first time the five associations of Greater New York have got together for social purposes, and if the February affair is a success it will probably be held yearly in the future.

The enthusiasm with which the idea has been taken up by the members of the various local associations is an excellent augury and the prediction is being freely made that everybody of any consequence in the New York plumbing and heating trade will take particular care to keep February 20th "free of all foreign entanglements," as a certain section at Washington would express it.

The following officers have been appointed by the Greater New York Association to make the necessary arrangements for the celebration: Mr. Mathew J. Kennedy, chairman; John J. Dixon, secretary; John F. Rogers, treasurer. The various local associations have also appointed Concert and Reception committees to co-operate with the three gentlemen above-mentioned, and these committees are as follows:

Manhattan:—Wm. Thompson, J. D. Cooley, Wm. Lawrence, T. Cummings, Wm. J. Conklin.

Brooklyn:—T. E. O'Brien, Wm. Wolff, T. W. Edgerton, L. Frisse, C. H. Mentzinger, J. Jarcho.

Bronx:—C. W. Kirchhof, F. Schmalstich, Wm. J. Flynn, S. Welch.

Queens:—F. B. Robertson, J. F. Rogers, G. M. O'Connor.

Richmond:—G. W. Falger, C. A. Schleininger, J. F. Elliott, C. R. Heap.

The Labor Situation in New York City.

Although it is definitely decided that there will be no general strike in the building trades for at least one month after the New Year, the employers and the unions having come to an agreement to continue the 1921 wage scales in force until January 31, 1922, plumbing and heating contractors who had hoped for a prompt and permanent stabilization of the labor situation have had cause to be disappointed by recent developments. The workers have flatly rejected the proposal of the Building Trades Employers' Association that an arbitration board of five be appointed to fix the 1922 wages and working conditions. On the other hand, the employers' organization has taken a non-committal attitude toward the later proposal made by Samuel Untermyer, chief counsel of the Lockwood Committee, that the present wage scales be continued throughout 1922, subject to the appointment of an arbitration board of seven to consider the question of efficiency, and the willingness of the unions to live up to the recommendations of the said board. While the employers have not as yet flatly rejected Mr. Untermyer's suggestions it cannot be said that they have received them with any great degree of enthusiasm. The situation, therefore, so far as the adjustment of the wage question is concerned, at present remains in a state of deadlock.

Aside from the wage issue, however, an important development which is regarded as possessing very favorable possibilities for the improvement of labor conditions in the building trades occurred this week as an outcome of a conference held between Mr. Untermyer and twenty-two leaders

of trade unions to discuss the "efficiency" recommendations recently made by counsel of the Lockwood Committee. The labor unions present at the conference, among whom were the plumbers' and steamfitters' locals, are said to have agreed to several of the nineteen reforms demanded by Mr. Untermyer, and it was also agreed that the building trades unions are to appoint a committee of five to continue negotiations with the Lockwood Committee.

Among the points known to have been decided at the conference was the agreement by the unions to raise the age limit of apprentices from 16 or 18 years to 20 years, in accordance with the request of the Lockwood Committee. This was a compromise on the original demand for placing the maximum at 25 years.

It was also agreed to limit the initiation fees of union members to $75. In some cases the fee has been as high as $200. Initiation fees, it was decided, should be permitted in the form of weekly payments, and men should be permitted to work while making payments.

Limitation of membership will be dropped, it was said. The bricklayers objected to abolishing the "lumping" system, under which a builder must permit a contractor to buy brick as well as engage labor to put it in place. Mr. Untermyer has insisted that the two functions be separated.

Both sides expressed themselves as satisfied with the progress made, and meetings will be held from time to time.

Earlier in the day Mr. Untermyer issued a statement in which he said that his attitude and that of the committee with respect to trade union incorporation had been misunderstood. He denied that the committee had prepared or to any considerable extent discussed or agreed upon legislation of that character.

"If the changes demanded are voluntarily made, there is no reason why the committee should pursue further this proposal of incorporating the unions," he said. "The committee would only be obliged to ask for incorporation of trade unions as a last resort."

Mr. Untermyer made it clear that he is well satisfied with the attitude of the officials of the unions, and regards the latter as being "much more amenable to reason and argument" than are the officials of the employers' organization.

It is worthy of note, however, that the conciliatory attitude of the workers in the building trades toward the Lockwood Committee's recommendations is said to be due to some extent to an announcement made by the New York Board of Trade and Transportation of its intention to submit to the State Legislature at an early date a bill which would establish in New York State a Court of Industrial Relations similar in principle to the one functioning in Kansas, and containing provisions for compulsory arbitration. The proposed measure is openly viewed with alarm by labor interests in the state, and National, State and City officials of organized labor are said to be uniting in an effort to prevent its passage. Rather than submit to State regulation of labor unions and an industrial relations court, the workers in the building trades industry would much prefer to do their own housecleaning, it is suggested by those in close touch with the situation, and this explains why the unions have shown such a ready acquiescence to Mr. Untermyer's recommendations to eliminate as far as possible existing abuses which have been largely responsible for the high cost of building construction.

Despite these concessions, however, the New York Board of Trade and Transportation has announced its intention of proceeding with its plans for bringing about peaceful solution by compulsory arbitration of all industrial disputes affecting the public, and it appears certain that a bill designed to prevent unwarranted strikes and lockouts will be submitted to the Legislature.

Frank S. Gardner, Secretary of the Board of Trade, in making public the outline of the bill said that it was

SHUR-TITE

(Registered U. S. Patent Office)

GUARANTEED to fix that leaky boiler.

Seals quickly, permanently and economically.

Easy to use. Pour into boiler and start the fire—that's all.

The World's Best Boiler Cement

Order from your jobber

The Shur-Tite Manufacturing Co.

1240 West Fourth Street Cleveland, Ohio

Some good territory open for capable representatives

WHITAKER BOILERS

Don't "Just Happen" to be Good

They are made from the iron ore with that very thing in view—and that's where they start. Every process is carefully watched by expert boiler makers who *know* what must go into a really good range boiler.

Every Whitaker Range Boiler, as it stands on the shipping platform, is as perfect in material and workmanship as is possible for human intelligence to make it. That's why Whitaker Boilers are in such demand,—folks are finding out these qualities and buying them.

After you have installed a Whitaker Boiler, your hot-water trouble is eliminated, for they have been tested in use and they have proven their worth.

Let us tell you more about this *good* Range Boiler.

Wheeling Steel Products Co.
Wheeling, West Va.

Exclusive sales agents for Whitaker-Glessner Company' Wheeling Steel & Iron Co., and La Belle Iron Works

"neither the Kansas Industrial Relations Court law nor the Canadian Industrial Disputes act, but consisted of the best features of these and other similar measures.

"We are drafting the bill," he added, "with the idea of making an appeal to all parties and will cover every character of industrial dispute involving the interests of the public. We want to protect the interests of all three parties concerned—the public, the employer and employe.

"Its prime purpose is to preserve public peace, protect public health, prevent industrial strife, disorder and waste, to secure the regular and orderly conduct of the business directly affecting living conditions of the people of the State and to promote general welfare.

"This bill will not deprive any employe of the right to strike or stop work under certain conditions, and after reasonable time is given to consultation and negotiation and efforts to remove friction and restore harmony.

"One of the prime objects of the bill is to prevent precipitate action under stimulus of sudden rush of passion by bodies of employers and employes, which often results in unnecessary strikes and lockouts. We believe that provision should be made to compel both sides to take time and think over the matters involved in a dispute before taking direct action."

Under the provisions of the proposed bill as outlined by Mr. Gardner, who is taking a leading part in drafting it, both employers and workers are compelled in time of a controversy that becomes serious to report all the facts in writing to the State Industrial Commissioner, who will have power to adjust the dispute. This may be done by appointing a board of conciliation, by getting both parties together in conference around the table, or by any other peaceful method. In any event, however, it will be unlawful for either side to call a strike or lockout.

At the end of thirty days, if no settlement is reached and a strike or lockout looms, the Commissioner, employe or employer may appeal to the State Supreme Court, which will receive all the facts in the case from the written records of the negotiations and will act accordingly. If the employer applies, an injunction may be issued against the labor organization if the Court deems it necessary, and vice versa if the employe makes the application.

Should the Supreme Court consider that the strike does not affect the public's interest and issue no injunction, both sides are free to fight the dispute out among themselves. Should a lockout or a strike be declared in the face of a court injunction the offending parties will be dealt with for contempt of court.

Public protection is provided in the bill by giving any public group of ten citizens the right to go into court and demand an injunction in the event that a strike looks probable.

Mr. Gardner said that the industrial court's feature of the bill would "only be called into operation in extreme cases." This court, he said, would consist of three justices of the Supreme Court and "would not result in an additional burden on the taxpayers of the State."

The Board of Trade and Transportation is composed of representatives of the largest business and commercial interests in the city, and was organized nearly fifty years ago, "to promote the trade, commerce and manufactures of the United States, especially of the State and City of New York.

Mr. Gardner made public the resolution adopted by the Board of Trade authorizing the drafting of the Industrial Relations bill, which says in part:

"Whereas, we believe that the most practicable means to secure this end is through a court of justice especially established, and with powers of final adjudication, to which, in case of dispute, all parties at interest—employer, employe and the public—can freely and must resort, such a court as that now established in the State of Kansas and known as

the Court of Industrial Relations, which has already in a large degree demonstrated its efficient and beneficent usefulness; therefore, be it

"Resolved, by the New York Board of Trade and Transportation, That we endorse the principle of the law creating the Court of Industrial Relations in the State of Kansas and hereby request and authorize the Committee on Interests of Employers and Labor to take steps to have drafted a bill for a similar law adapted to conditions in the State of New York and to co-operate with other organizations to secure the enactment of the same."

William F. Kehoe, secretary of the Central Trades and Labor Council, said that organized labor in the State had learned that the bill was being drafted and was prepared to "fight it to a finish."

"My understanding of the bill is," he said, "that it is the Kansas Industrial Court law wrapped in a new overcoat. Labor is not to be deceived. We have already prepared our plans and will take care of the situation at Albany as far as it is within our power. We are also going to fight any attempt to incorporate labor unions. This would not remedy the situation, but would aggravate it."

Massachusetts

Boston and Vicinity.

George E. Gilchrist, head of the plumbing supply house of the George E. Gilchrist Co., who died recently at his home in Melrose, a suburb, left an estate which has been inventoried at $203,841 in personal and $24,550 in real estate. His 850 shares of stock in the George E. Gilchrist Co. are inventoried at $106,250. He also held large blocks of stock in the Gillette Safety Razor Co. and in several steamship lines, banks and insurance companies.

Bernard T. Clancy and William P. Fitzgerald have formed a partnership under the firm name of the C. & F. Plumbing & Heating Co. and have opened an establishment at 60 Carver Street.

Trustees of the India Building, 84 State Street, are to erect a new office building at 74 State Street from plans by W. C. Appleton and Frank A. Stearns, 53 State Street. It will be of brick, stone, steel and reinforced concrete, eleven stories, each floor containing 1,576 sq. ft. floor space.

The Lumber Mutual Insurance Co. is to erect an office building at Beacon and Raleigh streets from plans by Architects Bellows & Aldrich. It will be of brick and stone, three stories, 50x125 ft.

N. J. Murphy is to erect five residences on Parkvale Street, Roxbury district, and three two-family houses on Halford Street, West Roxbury, costing $7,000 and $10,000 each, respectively.

Other Cities in the State.

The Gannon-McKnight Co., Clinton, has been incorporated with a capital of $18,600 to conduct a plumbing and heating business. The incorporators are John J. Gannon, George McKnight and William S. Duncan, all of Clinton.

James S. Cassedy, of Cambridge, has been awarded the plumbing contract on the new office of the cemetery department of the City of Cambridge.

Plans are being prepared for a synagogue for the Congregation B'Nai Brith, of Somerville; P. B. Long, chairman of building committee and S. S. Eisenberg, 46 Cornhill, Boston, architect. The building will be of steel, brick and stone, and will cost $60,000.

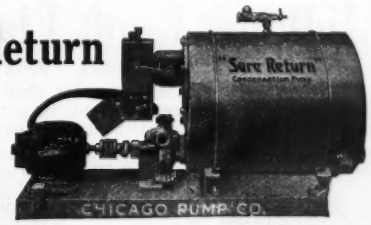
Gordon Blanchard is to erect a $20,000 residence in Holyoke from plans by Geo. P. B. Alderman, of Holyoke.

Contracts will soon be awarded for a dairy building for

THE "ENDURO"
HARD RUBBER FLOAT
The Perfect Float For Closet Tanks

Descriptive circular and prices upon request.
Woodward-Wanger Co.
1106-1110 Spring Garden St., Philadelphia, Pa.

Sure Return
Condensation Pump and Receiver Outfit



STANDARDIZED quantity production which allows superior construction at less cost to you, complete mounting and connections made on one base, lower operating costs, all are features of this outfit, and at a price no higher than any other.

Delivery on renewal parts can be made same day ordered.

Write for our specification data —it means money saved for you.

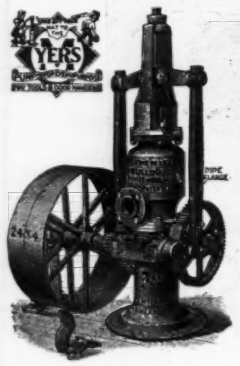
CHICAGO PUMP CO.
2322 Wolfram St. Chicago, Illinois

Watrous Patent Plumbing Specialties

Duo-Jet Closets and Flush Valves; Urinals, Self-closing Cocks; Liquid Soap Fixtures; Drinking Fountains, etc.

Send for our Catalog.

IMPERIAL BRASS MANUFACTURING CO.
510 S. Racine Ave. CHICAGO, ILL.



Myers Power Pumps

Great strength and ample lifting power are essentials where water is pumped from deep wells or forced against heavy pressure.

In MYERS BULLDOZER POWER WORKING HEADS—all styles—the power is applied direct to the piston through double pinions, gears and side arms thus insuring great lifting power with a minimum of side motion and strain which reduces wear and breakage.

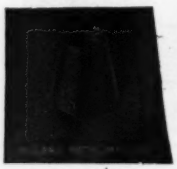
Simplicity of construction with but few working parts adds to the life of Myers Pumps and makes them exceptionally desirable where severe service is necessary.

Our No. PP20 Catalog shows the entire line of Myers Power Pumps—Let us mail you a copy and quote.

The F. E. Myers & Bro. Co.
Ashland, Ohio

Midland Roof Flashing

ALL LEAD (Patented) ONE PIECE

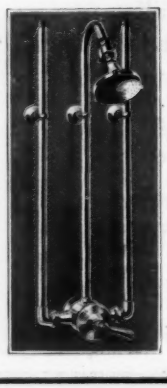


Base is heavier than four pound sheet lead and larger than usual, permitting two rows of shingles to cover upper part. No soldered joints to leak.

Heavy ring round inside top of neck for calking, instead of outside, as on old-style flashings. This permits them to nest together closely, saves space and packing expense. The Midland Angle Flashing will fit any pitch of roof.

Write for circulars and prices.

Midland Metal Manufacturing Co. Kansas City Missouri



THE INCOMPARABLE
NIEDECKEN SHOWERS
PATENTED

NIEDECKEN SHOWERS operated by NIEDECKEN MIXERS are reliable under all conditions. In the Residence, Gymnasium or Industrial Plant.

Write for Bulletin D-10 X

HOFFMANN & BILLINGS MFG. CO.
MILWAUKEE, U. S. A.

the LaRosa Dairy Co., South Hadley Falls; two stories. 40x62 ft., cost $20,000.

Greenfield Society of Odd Fellows of Greenfield will erect a four-story building from plans by architect R. M. Drew. Brick and steel, four stories and basement, 125x58 ft., cost $150,000.

A community building is to be erected in Dalton and sketches are now being prepared by Jallade, Lindsay and Warren, 129 Lexington Avenue, New York City. The building will be one-story and basement 90x140 ft., with gymnasium, swimming pool, bowling alleys and social departments. Cost $125,000. Plans will be ready for figuring in about two weeks.

Estimates for the proposed Masonic Temple for Springfield will be called for before early spring from plans by E. C. & G. C. Gardner, Springfield and G. C. Glover, Boston. E. A. Blodgett is chairman of the building committee. The building will be brick and stone, five stories and basement, 135x170 ft.

Among the larger plumbing contracts placed in Worcester within the last week are those to Becker & Crossley for the residence of Gustav Raeyz, 24 Purchase Street; John J. Wiseman for the apartment house of John Wood, 24 Lafayette Street; Tucker & Rice for the industrial museum to be erected by the American Steel & Wire Co.; Bjorn Bros., for the apartment house of M. Sullivan at 10 Hawthorne Street; James F. Rogers for the hotel to be erected by Dennis O'Connor and others at 1229 Front Street; C. William Ostberg for the Mellen apartments at 25 Hudson Street; William R. George for the two apartment houses of M.Gregoire on Powers Court, and W. J. LeClair for the Illingworth apartments on Chandler Street.

Philip Boyer has been awarded the plumbing contract for the new Foss Building, 439 Chicopee Road, Springfield.

Trustees for the Third Baptist church, Springfield, have awarded the plumbing contract to J. Singleton.

Connecticut

The Yale University Corporation has appropriated $1,320,000 for the erection of a modern medical school to be known as the Sterling Hall of Medicine and has purchased as a site for the building the city block bounded by Cedar, Broad, Palmer and Rose Streets, opposite the New Haven hospital in New Haven, Conn. Day & Klauder, of Philadelphia, have been selected as architects.

Preliminary plans are under way by Architect Delbert K. Perry, for the two story Washington schoolhouse at New Britain, for which bids will be asked within a month. The building will contain 18 class rooms, hall, etc.

M. J. Daly & Sons, Waterbury, have been awarded the heating contract and Charles Thatcher Co., the plumbing contract for the new fire engine house at Waterbury, brick, 85x50 ft., two stories and basement.

The Hartford Orphan Asylum, of Hartford, will erect a group of buildings at Bloomfield and Albany Avenues. Grosvenor Atterbury, 139 East 53rd Street, New York City, has been selected as architect and will have plans ready for figuring in about two months. Mrs. B. T. Williams, 15 Woodland Street, Hartford, is president of the society.

Plans for an imposing residence for Davis Strong, White Plains, N. Y., to be erected in Wallingford, Conn., are being prepared by Architect E. B. Caldwell, First National Bank Building, Bridgeport, and will be ready for figuring by Jan. 15.

A voluntary petition in bankruptcy has been filed by Charles T. Demarest, plumber, of Watertown, Conn. The liabilities are placed at $9,010 with assets of $2,857.

Rhode Island

Providence.

Braley & McLaughlin have the contract to install the heating system in the Grace Memorial church in Phillipsdale and also the contract for remodeling the heating system in Dr. O'Connell's residence on the East Side.

Reports from heating contractors in Providence, which include those that specialize in different types of heating systems, indicate an unusually large volume of this work now in progress. During the last three months there has without doubt been more heating contracts awarded than during any one season since before the world war. The work includes all types of heating systems. There are several reasons attributed to the spurt in heating contracts. One is an increase in construction, also many alterations and repairs which mean new heating apparatus; another is the large number of worn-out and old-time heating systems that have to be replaced.

The Frank Dupuis Co., Inc., has the plumbing and heating contracts on the Providence Public Market building, the Assumption College in Worcester and several residences in Providence.

The Rhode Island College of Pharmacy has purchased four lots and buildings at the corner of Benefit and Waterman streets, and will construct a three-story school building on the site.

Architect Ambrose J. Murphy, 146 Westminster Street, has prepared plans for a parochial school building to be erected at Taunton Avenue and Purchase Street, in East Providence for the Sacred Heart Parish. It will be a two-story structure, 114x65 ft., containing ten class rooms.

Architects William R. Walker & Son, 17 Custom House Street, have completed plans for the construction of a plant building on South Water Street, for the Charles H. Tanner Co.

Florida

Jacksonville and Vicinity.

Faith & Green have been chosen by W. J. Howey to erect a three hundred room hotel and several residences in the new Howey town site, near Travares, on the shores of Lake Harris.

Building permits issued in St. Petersburg totalled $4,500,000 for the year 1921.

Orlando has started the new year with a $1,322,000 bond issue for civic improvements. Of this amount the sewerage portion is $340,000, while $300,000 will be spent on the city water works. Building permits amounting to $115,000 were issued during the month of December, 1921. During the entire year twenty-three new apartment houses were constructed,—comparing very favorably with the year 1920, which saw but three such buildings completed.

The past year's records show that building permits issued in Jacksonville totalled $5,000,000; permits for the month of December alone reached $319,700.

Other Cities in the State.

Bechard & Hanson are the owners of a new $125,000 apartment building that is now under construction in Miami.

A bond issue of $100,000 in Plant City will be devoted to the construction of a Municipal Building and improvements to the sewers and water mains of the city.

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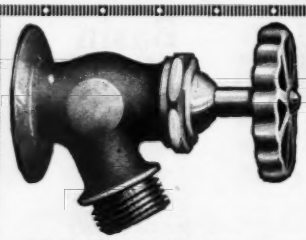

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STERLING ENGINEERING COMPANY
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A $60,000 sanitarium, with twenty-six rooms and boths for patients will be erected at Dunedin, by Dr. M. W. Pressley.

Dade county and the city of Miami are negotiating for the construction of a city-county building where all official business can be carried on under the same roof. If this deal is successfully arranged it will result in some very attractive contracts for the building trades.

California

San Francisco and Vicinity.

There is still a great deal of activity in building circles in San Francisco, especially as far as the plumbing trade is concerned. Numerous contracts are being let every day and all indications point to a very prosperous new year. Every plumbing supply house is busy with inventories right now; but they all state that the past year has been a very favorable one. Prominent plumbers of San Francisco and vicinity are facing the twelve months just ahead with a spirit of bouyant optimism.

Monihan & Slaven have been awarded the contract for the plumbing on a new apartment building at Geary and Leavenworth Streets. The building is to contain twenty-one apartments and the plumbing will cost approximately $6,600.

Deacy & Atwood will install the plumbing in a new flat on Asbury Street, the cost to be about $1,500.

The contract for the plumbing in the eight two-flat buildings now being erected on Twenty-first Avenue near Fulton Street goes to N. G. Weinholtz. The transaction involves an outlay of about $5,500.

Contracts amounting to $7,500 for the plumbing in a twenty-seven apartment building on Jones Street have been awarded to Herman Lawson.

For a thirteen-apartment building on O'Farrell Street near Hyde, the plumbing contract has been awarded to C. Peterson Co. at an estimated cost of $3,650.

Working drawings are being prepared by Architect Wm. C. Hays, for a two-story horticulture building, to be erected on the campus of the University of California, at a cost of $100,000.

The next meeting of the Master Plumbers' Association will be held in their hall at 120 Page Street, San Francisco, on Monday evening, January 9th. The meeting was scheduled for Monday, January 2nd, but was postponed because of the holiday falling on that date.

Alex Coleman has started work on the plumbing on the Orpheum Junior Theater at Taylor Street and Golden Gate Avenue.

The contract for the plumbing in the twelve-story apartment house being erected by J. L. Titlow at Bush Street, near Leavenworth, has been awarded to the Scott Company, at its bid of $4,500.

Herman Lawson has been awarded the contract for plumbing in the four-story apartment house being erected by John Beck on the southwest corner of California Street and Twenty-sixth Avenue.

W. P. Goss has the contract for plumbing in a four-story apartment house on Palm Street, near California Street.

The Scott Company has been awarded the following heating contracts: The Beck Apartments on the south side of Powell Street, north of Bush, at $3,655; the Emerson School on the north side of Pine Street at Devisadero, at $7,200, and the Excelsior Amusement company's building on Mission and Brazil streets, at $4,700.

J. H. Benney, plumber, of Atascadero, has sold his establishment to Andrew Hanson, of that city. Mr. Benney intends to engage in the plumbing business at Eagle Rock, near Los Angeles.

Los Angeles

Los Angeles now ranks as the third city in building for the year 1921—with a total in valuation of $73,544,535 for the eleven months ending November 30. Some idea of the building activities may be understood from the fact that Belvedere Gardens, a new subdivision, which was a pasture seven months ago, now has grown to a thriving community of eight hundred homes, two churches and twenty stores.

Plans have been prepared for an elaborate two-story, eight-room residence on Plymouth Boulevard, near Eighth Street, for Mrs. C. L. Lowman, 132 North Hobart Boulevard.

The Rommel Construction Company, of Glendale, will erect a two-story, brick theater building for Eagle Rock. The building will be 50 ft. by 110 ft.

Architect Chas. F. Plummer, 1108 Story Building, is preparing plans for a large two-story residence to be erected on Country Club Drive near Gramercy Place.

Eagle Rock is to have a new city hall. It will be of brick construction. A $35,000 bond issue has been voted and sold to cover the expenses.

Architects Bertram Goodhue, New York, and Carleton Monroe Winslow, Los Angeles, have been selected by the board of library directors to design the new central library building for Los Angeles City. Bonds in the sum of $2,500,000 have been voted for library purposes and about $1,500,000 will be available for the new building which will be erected on the Normal Hill site.

A new branch library to cost about $80,000 is to be erected at Hollywood. Architects Dodd and Richards have been selected to design the building.

Plans are being prepared for an eight-room Spanish style double bungalow in Hollywood for A. Fink. Frank M. Tyler, Hibernian Building, is the architect.

A two-story flat building is to be erected on Figueroa Street, south of Jefferson Street, for Albert Cahn. The building will be of frame and plaster construction, with tiled baths and gas radiators.

Architect A. S. Nibecker, Jr., 421 Washington Building, has completed plans and is taking bids for a two-story and basement reinforced concrete store and loft building, 100x120 ft., at Spring and Court streets.

A new bank building is to be erected on the southwest corner of Pier and Hermosa avenues, at Hermosa Beach.

Mrs. Edwin Mitchell has commissioned Whitley & Brin to prepare plans for a two-story English type residence in Hollywood to contain eight rooms and two bathrooms.

F. D. Frankhouse is erecting a two-story frame and stucco flat building at 345 South Normandie Avenue from plans prepared by Frank Melvin Company. It will contain four, six-room flats.

Architect John E. Kunst, 720 Higgins Building, is preparing plans for a ten-room frame and plaster double residence on Fourth Avenue between Twenty-first and Twenty-third streets. Tile baths, gas radiators and three unit garage are included in the specifications.

Other Cities in the State.

The Tuesday Afternoon Club of Glendale will erect a new clubhouse on the corner of Lexington Drive and Central Avenue, from plans prepared by Architect Alfred F. Priest. The plans call for a building to cost approximately $50,000, in the Italian renaissance style with an auditorium to seat one thousand persons, dining rooms, social rooms and kitchen. Construction begins in February.

The San Antonio Hospital Association will erect a new hospital building at Upland. The building is to be one story with two wings, 252x43 ft. and 191x43 ft. with a connecting wing 46x73 ft. Hollow concrete walls, plaster exterior, basement 43x48, furnace and water heater are specified.

The San Fernando Board of Education is considering the installation of a swimming pool in the local high school.

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Pierce Down Draft, Magazine Feed, Smoke Consuming, Heating Boiler
Saves Fuel Labor
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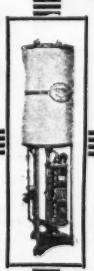
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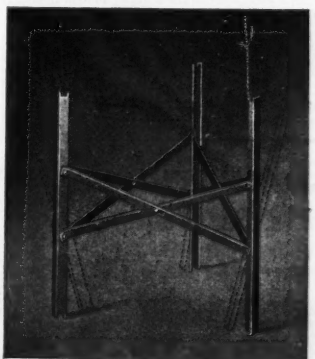
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It does away with pipe and fittings for four faucets—only two valves needed. Eliminates horizontal pipe carriers at back of tray. By a slight movement of spout, water is supplied to either tray. Hot water can be drawn without filling room with steam, by turning on cold valve slightly.

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Makes a better looking and more sanitary job.

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NATIONAL

C. A. Fellows, of Los Angeles, will install the plumbing in an eight-story warehouse, a $2,500 job.

Architect Myron Hunt, 1107 Hibernian Building, has prepared plans and is taking bids for a two-story, ten-room residence at Oak Knoll, Pasadena, for Dr. W. H. Roberts.

THE PROVINCE OF ONTARIO.

London.

Wright Teale Co. has the contract for ten new bathrooms and hot and cold water in the upper story of the Hotel Belvidere; Hunt Plumbing Co. has plumbing and heating contract for new stores for R. H. Smith; Wright Teale Co. has plumbing contract for Knollwood Presbyterian Church; J. Williams has heating contract, and Williams & Roberts have plumbing contract for new residence for F. C. Kilbourne; W. J. McGuire has heating, plumbing and ventilating contracts for new county jail at Sandwich, Ont.

Toronto.

W. J. McGuire has the heating and sprinkler contracts for building costing $75,000, for Goldstein Mfg. Co.; W. J. Griffiths, 1451 Queen St., W., has plumbing and heating contracts for six stores and apartments, for J. Becker; plumbing and heating contracts for two stores and apartments, for F. G. Leech, awarded to Kelly & Cracknell, 1721 Bloor St., W.; W. J. Griffiths has plumbing and heating contracts for store and apartments, for J. Becker; Davis & Jones, 51 Sellers Ave., have plumbing contract for four stores and apartments costing $10,000 each, and A. J. Wise Heating Co., Ltd., has heating contract; H. Ruddick has plumbing contract and M. Mason has heating contract for residence and garage, for F. L. Score; W. Johnston has plumbing contract and R. Steen the heating contract for residence for C. Cameron; R. Steen has plumbing and heating contracts for two residences for J. A. Shier; R. Ross has plumbing and heating contracts for residence for S. B. Hinder; A. Melhuish has plumbing and heating contracts for residence and garage for E. Ellerbeck; A. Shanks has plumbing and heating contracts for residence for W. W. Hall; A Melhuish has plumbing and heating contracts for residence for G. Christie; J. Dufferin has plumbing contract for pair of residences for Caster & Kaake.

Ottawa.

J. Chartrand, Hull, has plumbing and heating contracts for parish residence costing $30,000; M. Williams has plumbing contract, and Gervin & Hodgins have heating contract for residence for T. R. Browne; Erskin & Smith have plumbing and heating contracts for residence for W. J. Browne; P. Booth has plumbing, and A. L. Heath has heating contracts for residence for Miss S. O'Neill; Band & Cole have plumbing, and Capital Hardware Co. have heating contract for residence for G. B. House; H. Tapp has plumbing and J. R. Cameron the heating contract for residence for J. Johnston; H. Tapp has plumbing and heating contracts for residence for H. Villeneuve.

York.

The Board of Health of the Township of York, in presenting its annual report this week, emphasizes strongly the need of a drainage and sewerage system throughout the township. It was pointed out that a water system in the eastern portion of the township had greatly helped development. A recommendation was made that plans for a sewerage system independent of the city of Toronto, be taken up. Building to the value of $8,000,000 was done in the township this year.

BRITISH COLUMBIA.

Vancouver.

Plumbing and heating firms in Vancouver are kings of all they survey (or have time to survey) just now. For this city of famous mild climate has had the second coldest snap in its history. Its effect may be gauged by the following gratis announcement on the front page of the Vancouver Sun under the heading "Danger! Look Out! Call Plumber if They're Frozen Up"—"Send for a plumber; take no chances," advises W. B. Morrison, Granville Street plumber, "if the taps in the kitchen or bathroom are frozen you take a chance of blowing up the house by setting a fire in the stove which heats your tank. During Vancouver's last cold snap several years ago several deaths resulted from explosions in kitchen ranges."

There has been a regular siege of plumbers and furnace men, one firm, Barr & Anderson, receiving 170 calls in one day and only being able to attend to 25. Frozen water pipes and hot water heating systems were the order of the day, and Mr. Anderson of the above mentioned firm issued a notice to the public that—"Turning off the water is no guarantee against frozen pipes as all plumbing is not installed so that it drains properly." Householders, despite civic regulations to the contrary, were urged to let water taps run. Continual operation of hot water furnace systems was also advocated, it being pointed out, in this connection, that water, once boiled, freezes faster than otherwise.

Another branch of the metal industry also profited by the sudden cold wave, hundreds of auto radiators being frozen. One firm received sixty of these cars in one afternoon.

The last cold snap of any severity here was in 1893, but at that time the city, of course, did not boast the elaborate plumbing and heating system now included in its numerous residences and big office buildings.

In many respects the pleas to the plumbing firms were as deferential, persistent and unique as reward proposals to a newly-elected member of Parliament.

The sudden rush of activity, as far as the plumbing and heating trade was concerned, came at a most opportune time as of late there has been a decided tendency to slow up in building construction to await the new year. Now some of the leading firms state that the work created by the cold snap, with its repairs and, in many cases, replacements, will carry the trade nicely over what otherwise would have been a slack spell.

HOW NEW YORK VIEWS THE INSTALLMENT PAYMENT IDEA.

(Continued from Page 23.)

retiring president of the Manhattan Association of Master Plumbers. "I don't see how we could use it. It's all right for furniture and pianos and things of that kind, but it wouldn't work with us. Moreover, we haven't time to investigate people properly, and without proper investigation the general result could only be disastrous. A lot of work is rush work and we've just got to jump right out and get it done and leave the question of payment to a later date. And there's just this point, that the plumber, as it is, is paid in many cases on the installment system. He rarely gets paid all at once."

"I don't think the installment system would work well in our business," said Charles W. Kirchoff, retiring president of the Bronx Association of Master Plumbers. "So far as that goes, we're paid now in installments, so much when the piping is in, so much when the fixtures are delivered, and so much when the job is completed and maybe a final payment. At least, that's what we're supposed to get, but it doesn't always work out as well as that. And at that, we have to pay the supply people promptly.

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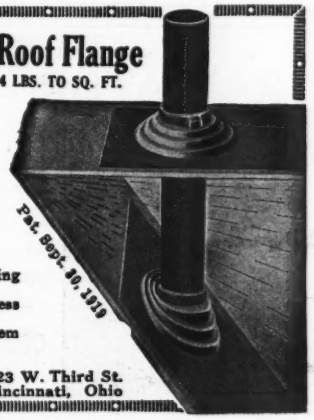

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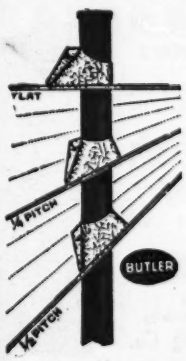

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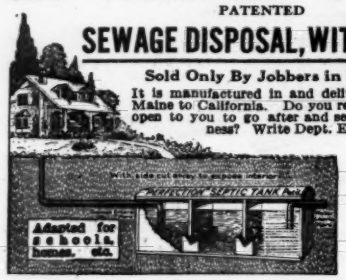

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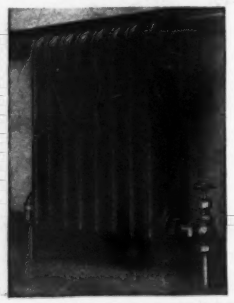

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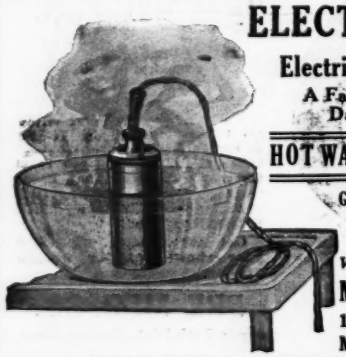

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Interior thoroughly tinned.

No iron used in construction.

Guaranteed against collapse.

Always satisfactory. You can safely install them on your best jobs.

Order from your jobber. Made by

Hayes Manufacturing Co.

Paterson, N. J.

"The average plumber hasn't time to investigate his customers to the extent that the installment system would require," added Mr. Kirchoff. "Lots of times he's called in as a kind of emergency man, like a doctor, and he may go out and do a whole lot of work and then get stung when he presents his bill. I suppose every plumber in New York gets customers of that kind once in a while. But that, of course, is a bit away from your question because the installment system would only be applied to new installations. Even at that, the plumber works on a small margin and if he had to make a loan to his customer—and that is what it amounts to—he'd have to add a percentage to his bill for the accommodation; and the customer probably wouldn't stand for that. Everybody is looking for lower prices nowadays instead of higher ones. No, I don't see how the plumbers could operate an installment-payment system."

"I never heard of it," said William Thompson, newly elected president of the Manhattan Association of Master Plumbers. "And I don't see how it could be operated successfully. The margin of profit allowed to the plumber wouldn't permit him to hire the investigators and clerks and bookkeepers and collectors the system would necessitate. It may be all right in other industries where prices maybe are more flexible and they can get away with it easier than we could."

"Nothing doing for the plumbers," said John A. Murray, Jr., of the plumbing supply house of John A. Murray & Co. "They're practically paid in installments now and they pay us in the same way, but I don't see how they could adopt the system in the regular way. For one thing' they'd have to charge more to installment customers and the latter wouldn't stand for that. The plumber works on a small margin of profit and he couldn't afford to do the work and accept deferred payments and yet charge no more than he would for a cash settlement; when he's lucky enough to get a cash settlement. And then, of course, he'd have to engage all kinds of additional office help and he couldn't stand that and the customer wouldn't, so there you are."

CODE OF ETHICS FOR THE BUILDING TRADES.

(Continued from Page 22.)

Sec. 2.—He should not encourage the practice of "Shopping" by not submitting bids which are not bona fide.

Sec. 3.—It is understood that where applicable the sections of Article 6—in reference to contractors—should refer also to sub-contractors and material dealers.

Labor.—Article No. 9.

Sec. 1.—Labor is a vital part of the building industry and is entitled to a fair compensation for its output. In return for fair compensation, labor, in common with all other factors in the industry, should give the best service of which it is capable, both in quality and quantity of production.

Sec. 2.—Arbitrary rules or regulations affecting the number of workmen to be employed or the installation or operation of plant and equipment and tending to artificially increase the cost of building, are economically unsound.

Sec. 3.—Every man has the inherent right to choose his trade or occupation. Restrictions which interfere with his right of free choice and his opportunity to learn and qualify in his chosen business, profession, or trade, have no moral or economic justification.

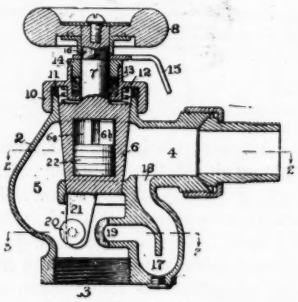
Sec. 4.—In the past, the great majority of strikes in the building industry have been due to jurisdictional disputes between labor unions. In fairness to all factors in the industry, labor should recognize some tribunal to which such disputes should be referred for decision, and there should be no cessation of work pending the decision.

Watch for the Annual Number of "Domestic Engineering" which will appear on January 14th.

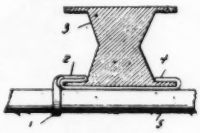
Patents

Heating Department.

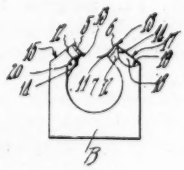
1,400,172. Valve. Hosea K. Kriebel, Philadelphia, Pa., assignor of one-fourth to Frederick L. Kriebel, Chicago, Ill. A steam valve comprising a valve body having inlet and outlet ports and a main valve seat between them and also having a water sealed passage between the inlet and outlet ports arranged as a by-pass about the main valve seat, combined with a main valve for controlling the main valve seat, and an auxiliary valve movable with the main valve to control the water sealed by-pass whereby when the water sealed by-pass is closed, the main valve is also closed and the main valve may be adjusted for controlling communication between the inlet and outlet ports without closing the auxiliary valve.



1,400,172.



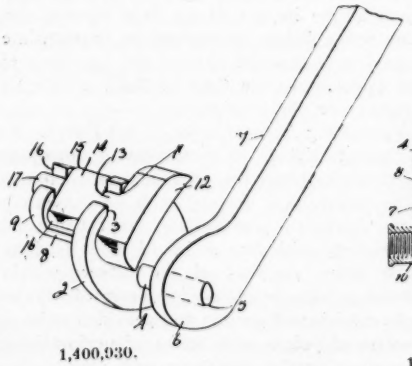
1,399,960.



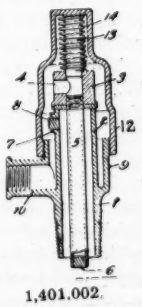
1,399,932.

1,399,960. Pipe-Hanger. William Harding, Cleveland, Ohio. A hanger consisting of a bar having a suspending loop provided with a point extending laterally therefrom said bar being returned toward the loop and then extended beyond the point to provide a securing portion, and said point extending from the same side of the loop as and in spaced relation to the securing portion.

1,399,932. Die. Frederick W. Conant, Conway, Mass. A thread-cutting device, having the usual leading portion and a tapering portion at the entrance end of the die to form the usual cutting portion, and a second tapered portion substantially at right angles to the first tapered portion and intersecting therewith the intersection of said tapered portions constituting the cutting edge of the cutting portion.



1,400,930.



1,401,002.

1,400,930. Pipe-Wrench. James F. Astley, Camden, N. J. A wrench consisting of a supporting member, a bracket

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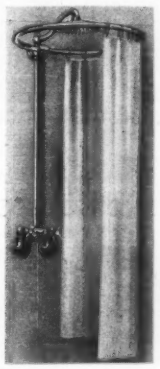

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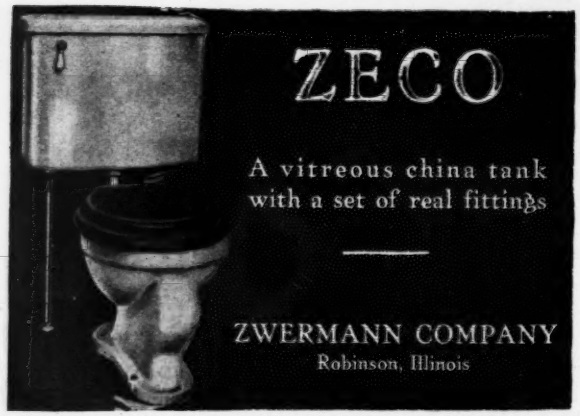

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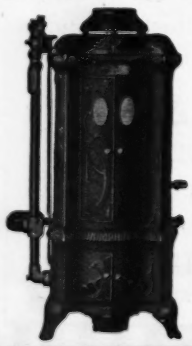

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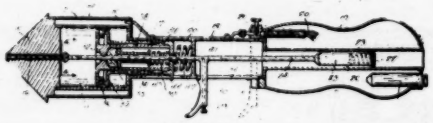
carried thereby, a gripping member journaled in the supporting member and bracket, an operating lever and means for detachably connecting said lever with the supporting member, said lever co-acting with the gripping member to actuate the same.

1,401,002. Safety Relief-Valve for Hot-Water Systems. Charles H. Smith, Boston, Mass. A device of the class described comprising a tube in communication with water in a tank, a pressure valve controlling the outlet from one end of said tube, and a fusible plug closing an opening through the side of said tube.

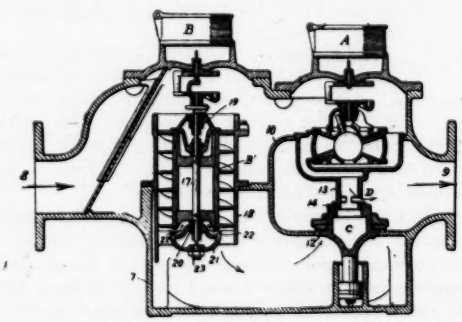
Plumbing Department.

1,400,148. Soldering-Iron. Alonzo A. Frum, Columbus, Ohio. A soldering iron including a bit having a bore, a cylinder adjacent to the bit with which the bore communicates, a spring pressed plunger in the cylinder, means for heating the cylinder and bit, and a valve stem having a handle and having its forward portion extending into the bore of the bit and provided with grooves in its surface and also having a valve piece rearwardly of its grooved portion engageable with the bit around the rear end of its bore.



1,400,148.

1,400,523. Fluid-Meter. Horace Chrisman, Edgewood Park, Pa., assignor to Pittsburgh Meter Company, East Pittsburgh, Pa., a corporation of Pennsylvania. A metering device comprising in combination a casing through which the fluid to be measured flows, means in the casing for operating the meter, said means being actuated by the flow of fluid through said casing, a bearing for said means, and means co-operating with the operating means and spaced away



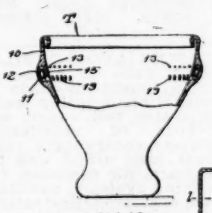
1,400,523.

therefrom to entrap a relatively stagnant body of fluid therebetween subject to the impact of the fluid flowing through the casing, the space being so formed as to translate the impact pressure into a pressure against the operating means in a direction opposite to the flow of fluid, which acts to relieve the pressure on the bearing.

1,401,091. Ventilating Apparatus for Closet-Bowls. Arthur W. Lucas, Fremont, Nebr. In a ventilating apparatus for closet bowls, a bowl having the intermediate portion of its wall, above the water level, formed with an outwardly extending hollow thickened portion, the bowl being formed at its inner periphery with two series of holes leading into the upper and lower portions of the hollow within the thickened portion of the bowl, a pipe permanently located within the hollow thickened portion and provided at its uppermost and lowermost points with series of perforations, and means for creating suction through said pipe.

1,400,541. Water-Heater. Charles C. Hansen, New York, N. Y., assignor to Thermal Appliance Company, Inc., Eliza-

bethport, N. J., a corporation of New Jersey. In combination with a furnace having a wall containing spaced apertures, a water heater comprising a heating pipe lying within the furnace and having a middle portion extending parallel to the wall of said furnace and two end portions extending transversely to said wall and inlet and outlet water connections in the form of studs extending from said end portions of the heating pipe, one of said studs having a cylindrical portion extending through one of said apertures in the furnace wall and of less diameter than said aperture and of less diameter than said end portions of the heating pipe, and a threaded portion extending from said cylindrical portion and of less diameter than said cylindrical portion, a washer on said cylindrical portion within the furnace wall, a washer on said threaded portion without the furnace wall, said washers being of greater external diameter than said apertures in the furnace wall, and a nut on said threaded portion adapted to force said washers together, the length of said cylindrical portion being substantially equal to the combined thickness of the furnace wall and the washer within the furnace wall so that the thrust of said nut is taken upon said cylindrical portion.



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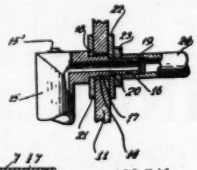
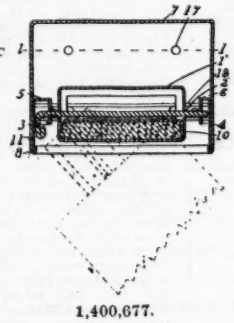


1,400,541.



1,400,677.

1,400,677. Toilet-Paper and Paper-Towel Dispenser. Newton S. Hillyard, St. Joseph, Mo. In a roll-paper dispenser, a bearing plate, a shaft, one end of said shaft oscillatably mounted in a loose fitting aperture formed through said plate, a shaft stop formed of a portion of said shaft bent at practically a right angle thereto outside of said bearing plate with a return bent end formed on the free end of said shaft stop, another bearing plate provided with an aperture formed therethrough for the reception of the other end of said shaft said other bearing plate having an inclined slot formed therethrough the upper end of said slot terminating in said aperture and its lower end opening through the lower edge of said plate, a shaft retainer for retaining said other end of said shaft in its bearing aperture, a sleeve in which said retainer is slidably mounted for vertical movement, a slot closer formed on the lower end of said retainer for closing said inclined slot, an eye formed on the upper end of said shaft retainer whereby it is lifted for releasing the adjacent end of said shaft, and a paper holder secured on said shaft, said paper holder being adapted to have a roll of paper tightly fitted thereon, the whole forming ready means for detaching and lowering one end of said shaft and the thereon secured paper holder and whereby said shaft can easily and quickly be returned to normal position.

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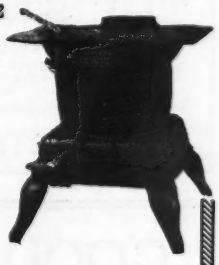

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TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., December 27, 1921. Sealed Proposals will be opened in this office at 3 p. m., January 16, 1922, for furnishing and delivering hydro therapeutic equipment, all charges prepaid at the U. S. P. H. Service Hospital, Norfolk, Va., Tanner's Creek Site. Specifications may be obtained at this office in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., December 28, 1921. Sealed Proposals will be opened in this office at 3 p. m., Jan. 17, 1922, for furnishing and delivering sterilizers for the U. S. Public Health Service Hospital, Norfolk, Va., Tanner's Creek Site. Specifications may be obtained at this office in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

Books for Your Trade Library

PRINCIPLES AND PRACTICE OF COST ACCOUNTING. By F. H. Baugh. Presents a modern method of accounting for the plumber and steamfitter. A text and form book for those who would become expert in keeping track of selling costs, overhead expense, depreciation, administrative expense, etc. Illustrated by numerous forms. Size 6x9 in. 194 pages. Half leather. Price, $3.00.

NOTES ON HEATING AND VENTILATION. By Prof. John R. Allen. A text book on the known methods of heating and ventilation, covering warm air, steam, hot water and vapor, and approved methods of ventilation. Among the subjects covered are rules for figuring heat loss, direct and indirect systems, warm air furnaces, fan blast and air-mixing systems, auxiliary devices for heat control. Illustrations are especially numerous and well made. Size 6x9 in. 228 pages. Cloth. Price, 2.50.

PRACTICAL STEAM AND HOT WATER HEATING AND VENTILATING. By Alfred G. King. This book should be in every steamfitter's library. A strictly up-to-date work, describing various systems of heating and ventilation. Besides the technical features, it contains hints on securing contracts, business methods, shop practice, rules and data for estimating radiation and figuring costs, and other tables and suggestions that are time savers. Size 6x9 in. 368 pages, 300 detailed illustrations. Cloth. Price, $3.50.

JOHNSON'S HANDY MANUAL. By John W. Johnson. The author is a practical plumbing and heating man, having spent many years in workshops and has superintended the installation of plumbing and heating systems of all descriptions. Nine editions of this popular book have been exhausted. The tenth is just off the press. Size 4x6¾. Cloth. Price, $1.75.

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